The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 135, No. 5 CHICAGO, ILLINOIS OCTOBER 4, 1947

COPYRIGHT, 1947, BY AMERICAN MEDICAL ASSOCIATION

THE PRESENT STATUS OF ANESTHESIOLOGY AS A SPECIALTY

Chairman's Address

CHARLES F. McCUSKEY, M.D.
Los Angeles

Anesthesiology has developed slowly into a medical specialty. Before the establishment of the American Board of Anesthesiology the physician who devoted his full time and effort to the practice and advancement of anesthesia as part of the practice of medicine was rare except in a few localities. The New York Society of Anesthesiology and International Anesthesia Research Society contributed much to the development of this specialty by helping to bring together and unite anesthesiologists in the American Society of Anesthesiologists. With the formation of the American Board of Anesthesiology and the Section on Anesthesiology of the American Medical Association the specialty has been firmly established in the practice of medicine. Much remains to be accomplished before it reaches full maturity.

The excellent work of anesthesiologists in the recent war in reducing mortality through proper care in the operating room has been reflected in the present demand for anesthesiologists in civilian practice. To supply this demand with trained qualified specialists is one of the urgent tasks at present. As this immediate demand is met, it will create new demands for universal recognition of the part of the anesthesiologist in the medical world, which awaits only demonstration of his service.

At present there are 337 diplomates of the American Board of Anesthesiology and 261 fellows in Anesthesiology of the American Society of Anesthesiologists. This does not mean 598 diplomates or fellows, because many members of this group hold dual certification. There are 2,400 members of the American Society of Anesthesiologists. Many of these do not limit their practice to anesthesiology, and some do not practice at all but are engaged in teaching the basic sciences or in research. The American Medical Association has approved 102 hospitals for the training each year of a total of 366 residents in anesthesia. Against this small total of actual and potential anesthesiologists there is a total of 6,280 hospitals in the United States. Of this number, those classified as general hospitals, children's hospitals, orthopedic hospitals, eye, ear, nose and throat hospitals and tuberculosis hospitals total 5,278. The majority of these 5,278 hospitals are without proper or adequate coverage by anesthesiologists. The situation is further complicated by the fact that a concentration of anesthesiologists exists in the larger cities and in teaching centers.

With this tremendous potential need for the services of anesthesiologists a large number of young physicians should be turning toward this specialty. However, this is not the case. Some of the factors that may be responsible are as follows: 1. The importance of anesthesia in the surgical care of the patient is not stressed in the medical schools, and the majority of medical students are not given adequate instruction in the basic principles and problems of anesthesia. 2. Because of the lack of anesthesiologists in most communities, anesthetics have been given by general practitioners, surgeons and technicians. Interns who receive training in these hospitals are never exposed to the practice of anesthesiology in its best form and hence are not attracted to it. 3. The surgeons in localities where there are no anesthesiologists are responsible for anesthesia as well as for surgery. This situation has tended to suppress anesthesiology as a separate specialty. 4. Because anesthesia in many localities is given largely by trained technicians hired by the hospital the physician has not been given any particular financial inducement to practice this specialty. The profit accruing to hospitals from the use of technicians has caused some hospital administrators to oppose the use of the anesthesiologist who is a medical specialist despite the fact that physicians can give the patient better medical care.

These then are some of the obstacles confronting anesthesiology as a specialty at present. Many surgeons because of these factors have never seen good anesthesia. Therefore they do not demand it or expect it. The younger surgeons who have been in the army or navy are just now beginning to voice their discontent with the present situation.

On the other side, let me consider some of the more favorable factors. Despite obstacles, inertia and discouragement anesthesiology is a growing specialty. It has grown slowly to the present, but everything indicates that its growth will be rapid in the future. In many centers it is an active specialty, the value of which has been firmly established through the efforts of a few teachers and excellent clinicians. Younger men have developed in these localities, and they in turn are becoming the nucleus for future centers. Surgeons who have been in the services and have had the benefit of an anesthesiologist as a consultant and co-worker are making maximal use of such specialists in their localities and doing much to foster and encourage them to locate in communities in which they are not as yet prevalent. Members of hospital staffs are insisting that anesthesiologists be secured to give the patients the maximal possible benefits of good surgical care. Resi-

Read before the Section on Anesthesiology at the Ninety-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., June 12, 1947.

dents who have finished with their training in anesthesiology are in great demand and become established rapidly and successfully. Many of these physicians have been started on their careers in anesthesiology in the army or navy and have continued in this specialty because they realize its future. That so many have remained is proof that if an adequate understanding of the field develops one of the major problems of the specialty is solved.

I have considered some of the adverse and some of the brighter aspects facing the anesthesiologist, and now I wish to consider what more can be done to improve the specialty and to advance it. It seems to me that each anesthesiologist must be a teacher. He must teach surgeons, residents, interns, medical students, nurses and the laity what he represents and what he can do to lessen the burden of illness for the patient. The anesthesiologist must also be a clinical physiologist. It is not enough for him to be highly skilled in the art and science of anesthesia; he must appreciate and take into account the variables that each patient presents as a physiologic entity. The anesthesiologist, of course, should always be a physician. As such he takes the personal interest in each case that is characteristic of the practice of medicine as it is fostered by the American Medical Association.

305 Westlake Avenue.

CARCINOMA OF THE STOMACH

A Ten Year Survey (1936 to 1945 Inclusive) of Early and Late Results of Surgical Treatment at the University of Minnesota Hospitals

DAVID STATE, M.D.
GEORGE MOORE, M.D.
and
OWEN H. WANGENSTEEN, M.D.
Minneapolis

Cancer ranks second only to cardiovascular disease as the commonest cause of death in this country. Of all deaths due to carcinoma, one fourth to one third are due to gastric cancer. As the age of the population increases, the number of persons who die from gastric carcinoma will also grow larger, so that by 1960 it has been estimated that 40,000 patients will succumb to gastric carcinoma annually.[1]

The very frequency of gastric cancer suggests that any approach to the problem of reducing the death rate from malignant growths must include a serious consideration of how the number of persons who die from gastric cancer may be diminished.

In the course of outlining a study to determine likely precursor groups of gastric carcinoma,[2] it was considered that the results of therapy of this disease at this institution during the preceding ten years should be determined so as to provide a basis for comparison with future studies.

Read before the Section on Surgery, General and Abdominal, at the Ninety-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., June 11, 1947.

From the Department of Surgery, University of Minnesota Medical School. The work reported here was supported by grants of the Jane Coffin Childs Fund for Cancer Research, the National Cancer Institute Fund, the Flora L. Rosenblatt Fund for Cancer Research and the Malignant Disease Research Fund.

1. Dublin, L. I.: A Statistical Analysis of the Mortality from Cancer: Some Fundamental Aspects of the Cancer Problem, New York Science Press Printing Company, 1937, p. 237.
2. State, D.; Varco, R. L., and Wangensteen, O. H.: A Study to Determine Likely Precursors of Gastric Cancer, J. Nat. Cancer Inst., to be published.

REVIEW OF THE LITERATURE

An exhaustive review of the world literature on the end results of treatment of gastric carcinoma up to 1937 has been compiled by Livingston and Pack.[3] The large experience of the Mayo Clinic has been summarized by Walters, Gray and Priestley.[4] More recently Maimon and Palmer,[5] in addition to summarizing and analyzing their results at the University of Chicago, have brought the literature on this topic up to date. These authors have called attention to wide variations in the published data from various institutions and have emphasized the need of analyzing all published statistics with respect to four factors: (*a*) the total number of patients with gastric cancer; (*b*) the number of patients subjected to operation; (*c*) the number of patients in which a gastric resection was done, and (*d*) the number of survivors in relation to the total.

Our data analyzed according to these headings are herewith presented.

OBSERVATIONS

(*a*) *Total Number of Patients with Gastric Carcinoma.*—The total number of patients with gastric carcinoma seen at the University of Minnesota Hospitals over the ten year period studied (1936 to 1945) was 586. Of these, 432 were men and 154 women. The average age (chart 1) was 63.2 years. Of this group, 19 patients were in terminal stages of their disease when first seen but are included in the statistical data.

(*b*) *The Number of Patients Subjected to Operative Intervention.*—The number of patients operated on was 447, an operability rate of 76.3 per cent (table 1).

If the 19 patients who were in terminal stages on admission are excluded, the operability rate becomes 79 per cent. In this group of 447 patients 85 (14.5 per cent) had exploratory laparotomy only, 25 (4.3 per cent) had gastrojejunostomy and 30 (5.1 per cent) had enterostomy.

(*c*) *The Number of Patients in Whom Gastric Resection Was Accomplished.*—Three hundred and seven patients underwent gastric resection, a resectability rate of 52.2 per cent. In this group there were 31 total gastric resections and 276 partial resections. The resectability rate based on the total number of patients studied was 52.2 per cent, but when determined on the basis of those subjected to laparotomy (447) it was 68 per cent.

Postoperative Mortality.—There were 307 gastric resections (table 1) with 51 deaths, a mortality of 16.6 per cent. There were 276 partial gastric resections with an operative mortality of 15.2 per cent and 31 total gastric resections with an operative mortality of 30 per cent. We have not subdivided our cases of gastric resections into those which were simple and those which were more complicated. Sixty-five per cent of all resected cases, however, had metastases to the regional lymph node and/or extension of the carcinoma to other organs, necessitating extensive surgical procedures.

Those operative procedures which were purely palliative carried with them a not insignificant mortality.

3. Livingston, E. M., and Pack, G. T.: End Results in the Treatment of Gastric Cancer, New York, Paul B. Hoeber, Inc., 1939.
4. Walters, W.; Gray, H., and Priestley, J.: Carcinoma and Other Malignant Lesions of the Stomach, Philadelphia, W. B. Saunders Company, 1942.
5. Maimon, S. N., and Palmer, W. L.: Gastric Cancer: Laparotomy, Resectability and Mortality, Surg., Gynec. & Obst. **83**: 180, 1946.

There were 85 exploratory laparotomies performed with a mortality rate of 8.2 per cent, 25 gastrojejunostomies with a mortality rate of 24 per cent and 30 enterostomies with a mortality rate of 13.4 per cent. These high figures are similar to those reported by other authors (Maimon and Palmer,[5] Livingston and Pack [3] and Anschütz [6]), and since the degree of palliation by operative procedures other than gastric resection is so small (vide infra), it is obviously desirable to perform a gastric resection even for palliation whenever feasible.

Causes of Postoperative Mortality After Gastrectomy.—There were 51 deaths after gastric resection, and it was possible to obtain autopsies in 44 of these cases. The major cause of death (table 2) was peritonitis, which accounted for 28 fatalities. Eight patients succumbed to pulmonary complications (atelectasis and pneumonia); 4 died of cardiac failure, 3 of renal complications, 2 of pulmonary embolism, 1 of a cerebrovascular accident and 1 of shock; in 4 cases the cause of death was undetermined.

It is not surprising to note that the most frequent cause of death after operation was peritonitis. Whereas the closed method of gastric resection was begun in this

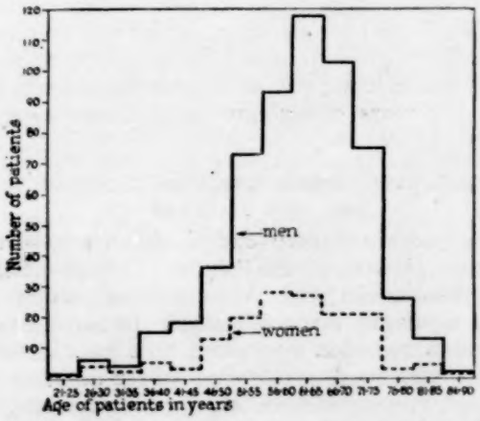


Chart 1.—Age and sex incidence of carcinoma of the stomach.

clinic in 1938, it was not until 1940 [7] that every member of the surgical staff was employing the method. Moreover, it probably should also be said that every surgeon trained in this clinic since the closed method of resection was adopted has remained an advocate of the closed anastomosis.

Since 1940 peritonitis has been infrequent indeed after simple gastric resection for cancer. The majority of the instances occurred after total gastrectomy or after complicated gastric resection which necessitated simultaneous excision of adjacent organs such as liver, pancreas and the colon. One patient died of a biliary peritonitis; at operation the gallbladder had been excised together with the gastric cancer. At autopsy the source of the leak of bile could not be demonstrated, but it was believed to have occurred from a small biliary duct in the hepatic margin adjacent to the wall of the gallbladder.

A baffling problem has been the management of the pancreas after partial division. In the main, most members of the surgical staff favor closure without drainage. Isolation and ligature of the pancreatic duct, employing a hand lens if need be to find it, is important. Approximation of the edge of the divided pancreas with a row of interrupted fine silk suture (0000) is regular practice, observing care to cut away all pancreatic tissue above the clamp. Finally, additional covering of the divided pancreas away from the gastrointestinal suture line is also important. Interestingly enough, after total gastrectomy with simultaneous division of the vagus nerves, less difficulty attending simultaneous resection of the pancreas seems to have occurred than after partial gastric resection. The preservation of the vagal trunks as well as partial retention of the secretal influence in partial gastric resection is probably responsible for this difference.

TABLE 1.—*Mortality of the Various Operative Procedures*

	No. of Patients	Per Cent of Total	Operative Mortality
Patients with no operation	138	23.7	
Laparotomy only	85	14.5	8.2
Palliative procedures:			
(a) Gastroenterostomy	25	4.3	24.0
(b) Enterostomy	30	5.1	13.4
Resections:			
(a) Partial	276	47.1	15.2
(b) Total	31	5.1	30.0
(c) All types	307	52.2	16.6
Total operations	447	76.3	17.9

The Fate of Patients Surviving Gastric Resection.—It was possible to determine the fate of each of the 307 patients subjected to gastric resection.[8] Two hundred and fifty-six patients survived operative treatment, but it is only those patients operated on prior to 1943 that one can speak of as three year cures; and only those patients operated on prior to 1942 can be considered 5 year cures. Table 3 *A* indicates the number of patients who survived for three years after gastric resection in the years 1936 to 1943. The percentage based on the total number of patients examined averages 10.7 per cent, but based on the number of those subjected to gastric resection the percentage of 3 year survivors reaches 29.4 per cent, with a high of 45 per cent for 1937. In all, 47 patients survived three years.

TABLE 2.—*Cause of Death Following Gastrectomy (All Types)* *

Peritonitis	28
Pulmonary complication	8
Cardiac failures	4
Renal complications	3
Pulmonary embolism	2
Cerebrovascular accident	1
Shock	1
Undetermined	4
Total	51

*Forty-four autopsies obtained.

Table 3 *B* indicates that 22 patients of the 328 patients seen between 1936 and 1941 inclusive survived five years, an incidence of 6.6 per cent based on the total number of patients seen. However, if calculated on

6. Anschütz, A., cited by Nielsen, A., and Hansen, S.: Indications and Results of Surgical Therapy of Gastric Cancer, Ugesk. f. læger **105**: 814, 1943.

7. (*a*) Wangensteen, O. H.: Aseptic gastric resection: I. A Method of Aseptic Anastomosis Adaptable to Any Segment of the Alimentary Canal (Esophagus, Stomach, Small or Large Intestine); II. Including Preliminary Description of Subtotal Excision of the Acid Secreting Area for Ulcer, Surg., Gynec. & Obst. **70**: 58, 1940; (*b*) Aseptic Resections in the Gastro-Intestinal Tract, with Special Reference to Resection of the Stomach and Colon, ibid. **72**: 257, 1941.

8. We are indebted to the referring physicians who responded to our requests for follow-up on patients and in particular to members of the Department of Vital Statistics of the Minnesota State Public Health Department who traced a substantial number of patients so that our follow-up was complete.

the basis of those patients who survived resection (102 patients) the percentage of five year survivors becomes 21.5.

Lymphosarcoma of the Stomach.—In addition, 5 patients with gastric lymphosarcoma, not enumerated among those with carcinoma of the stomach, were treated at this clinic between 1936 and 1945. One patient was deemed inoperable at laparotomy and was given deep roentgen therapy following operation. The fate of this patient was not determined because he could not be traced. The remaining 4 patients underwent partial gastric resection. There was no operative mortality in this group. In addition to subtotal gastric resection, 1 patient had postoperative radiation therapy. She is alive and well, now nine years later. The other 3 patients did not receive radiation therapy. Two patients survived one year after operative treatment, and the third is alive and well five years after surgical therapy. This experience is in keeping with that of others, which suggests that the incidence of long time survivors is greater after gastric resection for lymphosarcoma than it is for carcinoma.

TABLE 3.—*Survival of Patients Operated On in the Years 1936 to 1943 Inclusive*

			A			B		
Year	Total No. of Patients	No. of Gastric Resections	Patients Surviving 3 Yr. No.	Patients Surviving 3 Yr. %	% of Those Surviving Gastrectomy	Patients Surviving 5 Yr. No.	Patients Surviving 5 Yr. %	% of Those Surviving Gastrectomy
1936	58	16	4	7.0	40.0	1	1.7	10.0
1937	47	17	5	10.0	45.0	4	8.5	30.7
1938	48	13	3	7.0	30.0	2	4.2	22.2
1939	47	20	3	6.0	23.0	3	6.4	23.1
1940	65	42	9	14.0	27.0	5	7.7	14.2
1941	63	28	7	11.0	44.0	7	11.1	3.3
1942	52	34	7	13.0	25.0			
1943	67	43	9	14.0	20.0			
Total	447	213	49	10.7	29.4	22	6.6	21.5

TREND IN OPERABILITY, RESECTABILITY AND MORTALITY OVER THE TEN YEAR PERIOD

Chart 2 indicates that from 1936 to 1945 there has been a definite increase in the operability and resectability rate and a pronounced drop in the postoperative mortality. Whereas in 1936 the operability, resectability and mortality rates were 57, 28 and 25 per cent, in 1945 these rates were 88, 80 and 4.9 per cent. If the resectability rate is determined on the basis of the number of patients explored, in 1936 it was 48 per cent whereas in 1945 it was 89.7 per cent. The mortality rate in 1945 is for both subtotal and total gastric resections. The mortality after partial gastric resection alone was 3.8 per cent. There were 9 total gastric resections in 1945 with 1 death, a mortality rate of 11.5 per cent. Thus, of the 58 patients examined in 1936 only 10 were given a chance at cure or palliation, while in 1945 of 77 patients seen 58 were given that chance. Approximately twenty different surgeons performed the gastric resections in the ten year period (1936 to 1945) studied. Similarly, the resections in 1945 were done not by any single individual or team but were performed by seven different members of the surgical staff.

Although comparison between the years 1936 and 1945 is striking, it can be observed that during the last four years the operability rate has been considerably higher than 80 per cent, and of those patients subjected to laparotomy an average of 76 per cent have been resected (chart 3).

The decrease in operative mortality since 1940 has been due, we believe,[9] to a number of factors such as (1) routine employment of the aseptic or closed method

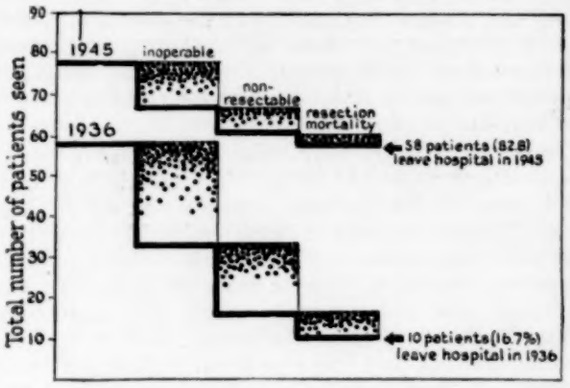


Chart 2.—Comparison of efficacy of surgical therapy of gastric carcinoma in 1936 and 1945.

of gastric resection; (2) elimination of obstruction at the efferent outlet stoma as a postoperative complication; (3) better preoperative nutritional preparation of the patient; (4) improved postoperative care, including early ambulation; (5) better anesthesia, and (6) in the last few years, availability of antibiotics, especially penicillin.

PALLIATIVE OPERATIONS FOR CARCINOMA OF THE STOMACH

(*a*) *Gastrojejunostomy and Enterostomy.*—During the earlier periods of this study (1936 to 1938) 5 gastrojejunostomies were performed for feeding purposes in apparently operable lesions. In only 1 of these cases was a resection performed at a later date; the others on subsequent exploration (three months) were considered inoperable. In all, the average length of survival after the 25 gastrojejunostomies which were

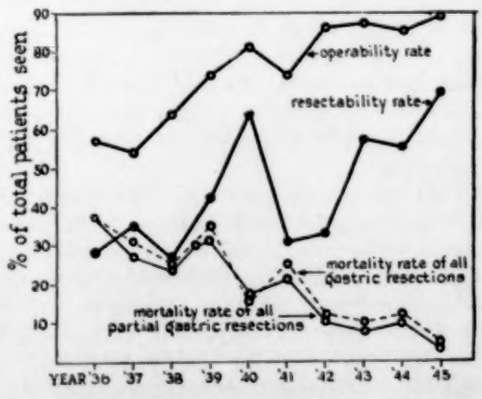

% of total patients seen
operability rate
resectability rate
mortality rate of all gastric resections
mortality rate of all partial gastric resections
YEAR '36 '37 '38 '39 '40 '41 '42 '43 '44 '45

Chart 3.—Ten year trend of operability, resectability and mortality rates in the treatment of gastric carcinoma.

performed was 5.4 months. Enterostomy, which was done in 30 patients, offered only an average of 3.5 months of survival with little or no palliation.

(*b*) *Gastric Resection.*—It is apparent that with the high resectability rate presented from this clinic, a large number of gastric resections were performed

9. Wangensteen, O. H.: The Surgical Problem of Gastric Cancer, Arch. Surg. **46**: 879, 1943.

not with the idea of curing the patient (because the extent of the carcinoma precluded this) but with the express purpose of offering worth while palliation. It is obvious that other palliative procedures such as gastrojejunostomy and enterostomy seldom benefit the patient at all, for the average survival of persons who do not have any treatment after the diagnosis of carcinoma of the stomach has been made is approximately three months. The number of months of palliation in those patients who survived gastric resection between the years 1936 and 1943 but subsequently expired from carcinoma of the stomach averaged approximately 22.4 months. In the main, the patients were reasonably comfortable during this interval up until a few weeks prior to their death. Sufficient time has not elapsed to permit the determination of the degree of palliation obtained in operations performed since 1943.

(*c*) *Palliation in Presence of Metastases of the Liver.*—Patients have had gastric resections for carcinoma even in spite of evident metastases of the liver. In most instances the resection was performed because of high grade obstruction to the gastric outlet. The average number of months of palliation has been much higher than we anticipated, namely fifteen months.

COMMENT

The Present Survey.—The trend in this clinic has been to increase the rate of operability and resectability, so that in 1945 the operability rate was 88 per cent and the resectability rate 79.6 per cent. These figures compare favorably with those published elsewhere, for the highest operability rate of 89.9 per cent was reported by Bocharov,[10] and the previous highest resectability rate of 44.6 per cent was published by Lahey.[11] A high operability and a high resection rate are of the greatest significance, for it is only when the patient is subjected to operative therapy and the tumor in the stomach is removed that he has a chance of survival. A low operability and resectability rate, even in the presence of an exceedingly low mortality rate, will do little to improve the end results of treatment directed at carcinoma of the stomach.

The postoperative mortality rate in this clinic has also decreased during the period of study, so that even in the presence of a rising operability and resectability rate the mortali y after gastric resection (subtotal and total) for the last four years has been under 10 per cent and for 1945 was 4.9 per cent.

The patients who survived three and five years constitute only a small proportion of the patients seen. There can be no question, however, even if these patients be cured of their disease, that periods of palliation averaging up to 22.4 months constitute a worth while achievement for the patient. Surprising, too, have been the prolonged periods of palliation following gastric resection even in the presence of evident metastases of the liver (average survival fifteen months).

It is questionable whether the operability, resectability and mortality rates that have been reported for 1945 will be bettered appreciably in our hands. It becomes evident that the only way in which the end results may be improved is by earlier diagnosis. Livingston and Pack,[3] as well as Walters, Gray and Priestley [4] have shown that if gastric resection can be done when the carcinoma of the stomach is entirely confined to that organ, the five year survival rate reaches 55 per cent. Moreover, Berkson [12] has indicated that after five years the survival expectancy is the same as that for well persons of the same age. To attain consistently high rates of cure, it is evident that the surgeon must have access to patients in whom the disease has not made such extensive progress. From our experience with patients who have residual carcinoma in the proximal line of resection, following gastrectomy, there is an interval of approximately fifteen months before the patient has symptoms of recurrence; in some patients it is longer. This has led us to believe that carcinoma of the stomach may be a silent disease for a period of fifteen to twenty months; and for another four to six months the symptoms may be so vague that the patient fails to seek medical aid. Moreover, if he does, the physician may fail to think that there is need to obtain a roentgenogram of the stomach. In consequence the diagnosis too often is delayed until the patient's chance of cure is poor.

Improvement in Operative Technics.—It is our impression that the more complete operation performed today routinely in this clinic for all operable gastric cancers will be followed by a somewhat larger number of long time survivors.[13] In such an operation the following factors are important: (1) extensive excision of the stomach with complete removal of the entire lesser curvature together with a segment of the duodenum and (2) excision of the greater omentum as well as the entire gastrohepatic omentum, including that segment of it which envelops the right side of the subdiaphragmatic esophagus. In lesions with local extensions to other organs such as the pancreas, transverse mesocolon or colon, simultaneous excision of such involved structures is indicated. Whether total gastrectomy will improve materially the results of operation remains to be shown. To be certain, if recurrence in the residual gastric pouch were a common sequel of subtotal gastric resection for cancer, Longmire's [14] suggestion of substituting total gastrectomy for partial gastric resection would be well worth heeding. Moreover, the operation of total gastrectomy can now be performed in practiced hands with a reasonable mortality. By the employment of the simple expedient of anchoring the posterior esophageal wall to the jejunum by two rows of interrupted silk sutures, the first row being placed at the mesenteric border of the jejunum,[13a] a firm buttress for the additional anastomotic row of sutures is obtained. When the anterior suture is completed the use of the anterior peritoneal flap described by Lahey [15] (1938) together with the posterior esophagojejunal fixation insures complete covering (extraperitonealization) of the anastomosis.

Tardiness of Diagnosis.—Measured against the broad background of gastric cancer, the increased salvage of life which will result from improvements in operative technics probably will not be large. It is perhaps permissible to suggest, however, that the only optimistic feature of the present outlook in the problem of gastric

10. Bocharov, A. A.: Gastric Cancer, Am. Rev. Soviet Med. **1**: 53, 1944.
11. Lahey, F. H.: Cancer: A Manual for Practitioners, Boston, Rumford Press, 1940, p. 103.
12. Berkson, Jim; Walters, Gray and Priestley,[4] chap. 22.
13. (*a*) Wangensteen, O. H.: The Problem of Gastric Cancer, J. A. M. A. **134**: 1161 (Aug. 2) 1947. (*b*) Wangensteen,[9] Lahey.[11]
14. Longmire, W. P., Jr.: Total Gastrectomy for Carcinoma of the Stomach, Surg., Gynec. & Obst. **84**: 21, 1947.
15. Lahey, F. H.: Complete Removal of the Stomach for Malignancy with the Report of Five Surgically Successful Cases, Surg., Gynec. & Obst. **67**: 212, 1938.

malignancy is what can be done surgically for those who suffer from gastric cancer. The surgeon's lament is that he sees too many patients too late. Yet this is the complaint of every surgeon dealing with malignant visceral growths. It has taken a long time to bring surgical practice to its present level of accomplishment, as this year, marking the Centennial of the origin of the American Medical Association, suggests. Looking back, mindful of the items that have made the surgical treatment of visceral cancer not alone possible but safe, one cannot help but ask, why did it take so long? Discovery is a slow and painstaking process, in which every increment of gain in knowledge in one art or science is dependent on similar gains in related fields.

However much we have occasion to deplore the tardiness of diagnosis of gastric cancer, the general improvement which has attended the efforts of the surgeon in his wrestle with the hazards of operation should cause us to have more patience with our own inability to diagnose gastric cancer early. Visceral cancer is a silent disease. Although we lament that patients fail to heed the onset of symptoms, our primary concern in the detection of gastric cancer should be with the circumstance that visceral cancer is a silent disease. The interval of transition in the cells of a mucous membrane or epithelial surface from the normal to a malignant state is a slow and gradual process, as suggested by the observations of Broders [16] for several types of malignant tumors and by Mallory [17] for gastric neoplasms; moreover, symptoms ordinarily are delayed till the invasive phase of the malignant transformation begins to compromise the function of the organ involved.

Cancer Detection Clinics.—With the knowledge of these facts and circumstances, and mindful of the alarmingly frequent incidence of visceral malignancy, and in particular of gastric cancer, it would appear that the only helpful method of recognizing visceral cancer earlier would be to examine periodically by the most precise means available a population believed to be normal, beginning at that time of life when visceral cancer is definitely on the increase. Autopsy figures suggest that 1 woman in 20 beyond 40 years of age will die of gastric cancer and that 1 of 12 men past 50 years of age will fall victim to the ravages of cancer of the stomach.[18]

A few pilot plants set up as Cancer Detection Clinics could probably determine within the space of five years the efficacy of available diagnostic agents in disclosing the presence of silent cancers in persons who do not recognize that they are ill. Obviously the time has not yet come to explore this thesis on a wide base. There are numerous persons who decry this approach to the problem as involving much labor and cost and little reward. To many, this prospect appears even less promising than David setting out against Goliath with a sling shot. Those armchair philosophers would prefer to wait till the dreams of a discerning Joseph or a Daniel divine new approaches to the detection of gastric cancer.

16. Broders, A. C.: Carcinoma in Situ Contrasted with Benign Penetrating Epithelium, J. A. M. A. **99**: 1670 (Nov. 12) 1932.

17. Mallory, T. B.: Carcinoma in Situ of the Stomach and Its Bearing on the Histogenesis of Malignant Ulcers, Arch Path. **30**: 348 (July) 1940.

18. (*a*) Berman, L.: Cancer as a Cause of Death in the University of Minnesota Necropsy Collection, M. S. Thesis in Pathology, University of Minnesota, June 1940. (*b*) Dormanns, E.: Die vergleichende geographisch-pathologische Reichs-Carcinomstatistik 1925-1933, Ztschr. f. Krebsforsch. **45**: 471, 1947.

The surgeon who has made visceral cancer his concern is not a person to be readily dismayed. If as great an advance can be made in the early detection of gastric cancer during the next decade as has occurred in its surgical management during the last ten years, the members of the medical profession will have good reason to feel hopeful that a brighter day is dawning for the sufferer from gastric cancer. The surgeon knows from his own experience that consistently earlier diagnosis would change completely for the better the present dismal outlook in visceral cancer.

In this clinic we have been examining over a two year interval the likelihood of uncovering in the outpatient population of a University Hospital Dispensary patients who harbor precursors of gastric cancer.[2] In this group have been included (1) all men and women over the age of 50 with (*a*) histamine achlorhydria or hypochlorhydria (less than 30 degrees free acid), (*b*) unexplained anemia (less than 10 Gm. hemoglobin per hundred cubic centimeters) and (*c*) occult blood in the stool; (2) the relatives of patients with gastric carcinoma; (3) all patients, regardless of age, with pernicious anemia, and (4) patients with gastric polyps. (5) The patient with free hydrochloric acid and a defect believed to be a gastric ulcer belongs in this precursor group, in that it is virtually impossible in many instances to determine whether the lesion is benign or malignant. Up to Nov. 1, 1946, 1,253 patients were subjected to gastric analysis employing histamine, and of this number 691 fell into the precursor group study. Roentgenograms were obtained in 575 patients, and 2 silent carcinomas and 15 gastric polyps were found. Moreover, the silent gastric cancers disclosed were not early lesions. The most promising aspect of the study would appear to be the location of the gastric polyps, some of which will undoubtedly become malignant with the elapse of time.

SUMMARY

1. Over a ten year period (1936 to 1945 inclusive) 586 patients with gastric carcinoma were seen in this clinic. Nineteen were in terminal stages of the disease when first seen.

2. Four hundred and forty-seven of this group of 586 patients were operated on, an operability rate of 76.3 per cent.

3. Gastric resection was performed in 307 patients; in 31 a total gastric resection was done, and in 276 a partial gastric resection was accomplished. The resectability rate based on the total number of patients seen (586) was 52.2 per cent, but based on the number of persons explored (447) it was 68 per cent. The previous highest resectability rate was 44.6 per cent reported by Lahey [11] (1940).

4. The mortality for all gastric resections was 16.6 per cent. For partial resections it was 15.2 per cent, and for total gastric resections it was 30 per cent.

5. The chief causes of death postoperatively were (in order of frequency) peritonitis, pulmonary complications, cardiac failure, renal complications and pulmonary embolus. In 4 instances the cause of death was undetermined.

6. Because sufficient time has not elapsed, the percentage of patients surviving three and five years can only be determined in relation to those patients operated on in the periods 1936 to 1943 and 1936 to 1941. The percentage of patients surviving three years after gas-

trectomy was 10.7 per cent, but based on the number of patients subjected to gastric resection it was 29.4 per cent. The percentage of patients surviving five years was 6.6 per cent, but determined on the basis of the number of patients surviving gastric resection it was 21.5 per cent.

7. Gastric resection was the only palliative procedure of value. The average number of months of palliation following gastric resection was approximately twenty-two. The patients in the main were comfortable up to the last few weeks before their death.

8. The operability and resectability during the ten years of study have increased steadily, while the mortality has decreased markedly. In 1936 the operability and resectability rates were 57 per cent and 28 per cent, whereas in 1945 these rates were, respectively, 88 and 80 per cent. The resectability rate for 1945 based on the number of patients explored was 89.7 per cent. The mortality rate for partial gastric resection in 1936 was 25 per cent, while in 1945 it was 4.9 per cent, which figure includes both total and subtotal gastrectomy.

CONCLUSIONS

1. Gastric resection remains the only mode of treatment capable of curing gastric carcinoma.

2. In spite of an increasing rate of operability and resectability and a decreasing mortality rate, the total number of patients cured of gastric cancer remains limited. In a series such as this, in which the number of palliative resections is large, the percentile of ultimate cures in the resection group obviously will be lower than if the indications for resection had been more conservative. The longest possible extension of life, however, results from employment of liberal interpretation of justifiable indications for even palliative resection. And until earlier recognition of gastric cancer makes curative operations more frequent, surgeons must continue to offer temporary relief when the hope of lasting cure is gone.

3. In order to increase appreciably the number of patients cured of gastric carcinoma, it is mandatory that the diagnosis be made at an earlier period than it is being made now. Efforts at detection of gastric visceral cancer, though they involve much labor and cost and little immediate prospect of reward, should be encouraged, for until our knowledge of the origins of cancer teaches us how to prevent or arrest its development, the only manner in which an important impact can be made on the problem in our own generation is through the agency of earlier diagnosis.

ABSTRACT OF DISCUSSION

DR. GEORGE T. PACK, New York: At the Memorial Hospital, Dr. Gordon McNeer and I analyzed the results of treatment of gastric cancer during the same decade, and our statistical data are practically identical with those furnished by Dr. Wangensteen. The statistics from the Memorial Hospital represent the operative mortality for all cases including the junior attending and resident staff. The high mortality rate consequent to gastroenterostomy for cancer is universal throughout the world. It is usually greater than the rate for resection because of the more advanced stage of the disease. Of our patients surviving gastric resection for cancer more than five years, in only 1 did a recurrence develop, which unusual fact is not in keeping with the frequency of recurrence of cancer after five years in other regional and histologic types. In the table listing the cause of operative deaths Dr. Wangensteen, who is the leading advocate of the closed or aseptic method of anastomosis after gastrectomy, has given peritonitis as the most frequent cause of death. At the Memorial Hospital the commonest fatal complications were of pulmonary and cardiovascular nature. Peritonitis has been a relatively infrequent, although important, cause, and yet we use the open method of anastomosis as a routine procedure. Dr. Wangensteen's figure for resectability is 52 per cent, which is 17 per cent higher than our resectability rate of 35 per cent. Yet our data would indicate that we have not been selective in a relative sense, because 18 per cent of the resections were total gastrectomies and 17 per cent were transthoracic cardiectomies, a total of 35 per cent of all resections being of this radical character. We have unhesitatingly removed contiguous organs involved by the gastric cancer, e. g., the spleen, left hepatic lobe, pancreas and transverse colon.

Comparison of Statistical Data

	Dr. Wangensteen and Associates	Drs. Pack and McNeer
	10 Year Period	
Number of gastric cancers	586	683
Operability	76 %	79 %
Resectability	52 %	35 %
Operative mortality Resection	16.6%	Subtotal 12.2% Total 30 %
Operative mortality Gastroenterostomy	24 %	12.5%
Resection survivors 5 years	21.5%	34.7%
Total gastrectomy	10 %	18.3% Radical
Transthoracic cardiectomy	None listed	17.0% procedures

DR. WALTMAN WALTERS, Rochester, Minn.: One of the contributions which Dr. Wangensteen and his associates have made in their paper is that as one's interest in the field of gastric surgery increases, the number of patients subjected to operation increases. The resectability rate will increase, and also the number of patients who undergo resection in relation to the total number examined will increase. Their contribution did a great deal to advance improvement in the treatment of patients with cancer of the stomach with respect to both recognition and more extensive resection. They showed how unsatisfactory were the results when but few operations were performed in comparison to those in which large numbers of patients were operated on by the individual surgeon. The more operations a surgeon performs, the lower will be the mortality rate associated with the type of operation in question and probably, within certain limits, the higher will be the curability rate. Dr. Wangensteen stressed that one of the important factors is early recognition of the lesions. In a large series of cases of cancer of the stomach which my colleagues and I reported in 1939, we were astonished to find (these were cases of proved cancer of the stomach) that a third of the entire group had a history of ulcer and had been treated for suspected ulcers. Of that group of patients with cancer and histories suggestive of ulcer who had been treated according to the suspected diagnosis of benign lesions, 80 per cent manifested an effective clinical response as measured by relief of pain. I am sure that this relief of pain delayed greatly the recognition that a carcinoma of the stomach was present. Sometimes this error is not entirely the fault of the examining physician, for it may be due to errors in interpretation of the roentgenograms of the stomach. In this series to which I have referred, ulcer had been reported in 10 per cent of the malignant lesions; an unspecified type of gastric lesion had been reported in 13 per cent of such lesions; there was an error of 1 per cent where the lesion was not recognized roentgenographically. These figures give rise to considerable speculation, for if the roentgenologist fails to see but 1 per cent of all gastric lesions it emphasizes what Dr. Wangensteen said regarding the desirability of such an examination in the group of persons to whom he referred. Moreover, it illustrates that a roentgenologic report of a gastric ulcer doesn't exclude its being a carcinoma.

HOMOLOGOUS SERUM JAUNDICE IN RECIPIENTS OF POOLED PLASMA

I. JAY BRIGHTMAN, M.D.
and
ROBERT F. KORNS, M.D.
Albany, N. Y.

The ready availability of pooled plasma, whether secured through commercial channels, state departments of health or local blood bank programs, has been a boon to medical practice. However, the fact that plasma may carry a virus capable of inducing hepatitis in the recipient has created a new public health problem of major importance.

The occurrence of homologous serum jaundice in recipients of blood and of blood derivatives has been reported by many investigators in both civilian and military fields. In a recent review Neefe [1] has presented an excellent description of both infectious hepatitis and homologous serum jaundice, and his list of references is extensive. The present study was designed to evaluate the risk of homologous serum jaundice inherent in the utilization of the dried pooled plasma which is now being distributed to meet civilian needs.

TABLE 1.—*Availability of Plasma Recipients for Follow-Up to Determine Incidence of Homologous Serum Jaundice*

Total plasma recipients in random sample	924	
Recipients eliminated	275	
Died within 30 days of transfusion		112
Unable to locate		107
Physician refused to supply information or permit home visit		40
Jaundice attributable to other cause		16
Recipients included in study	649	
Died between 1 and 6 months after transfusion without the development of jaundice		44
Survived 6 months or more, or died from homologous serum jaundice		605

TABLE 2.—*Incidence of Jaundice in Plasma Recipients and Their Household Contacts During Period Between One and Six Months After Transfusion*

	Total	Jaundice	
		Number	Percentage
Plasma recipients	649	29	4.5
Household contacts	1,597*	0	0.0

* Includes 56 contacts of the 29 plasma recipients in whom jaundice developed.

The problem was approached through two avenues. Part A: A follow-up study was made on a series of patients six or more months after the administration of pooled plasma to determine the subsequent incidence of homologous serum jaundice and the mortality therefrom. Part B: An investigation was made of a group of persons reported to have died of acute hepatitis in order to determine the number of those in whom previous administration of either plasma or blood may have been responsible.

PART A: FOLLOW-UP OF PLASMA RECIPIENTS

1. *Method of Study.*—The patients included in part A of this study, the follow-up of plasma recipients, had received transfusions with the dried pooled plasma which has been released by the American Red Cross and is now being distributed by the New York State Department of Health. In Upstate New York (New York state exclusive of New York city) physicians are requested to submit reports after the administration of each unit of this plasma, giving the name and other identifying data concerning the recipient, the lot number of the unit, the date of administration, the indication for the transfusion and any resulting immediate reactions. For the purpose of follow-up to determine the incidence of subsequent jaundice, 924 recipients named in these reports were selected at random, the only requirement being that six or more months must have elapsed since the transfusion of plasma.

In the majority of instances a letter was sent to the physician who had attended the patient at the time of the original illness; information was requested with regard to the patient's course subsequent to the transfusion of plasma, and he was asked for permission for the public health nurse to make a home visit. This home visit was a most essential part of the study and accounted for the disclosure of the majority of cases of homologous serum jaundice. Cases in which the physician refused to grant permission for such a visit were eliminated from the study unless he submitted specific evidence that he had full knowledge of the patient's course. In many instances in which the physician allowed the home visit although he indicated that the patient was still under his care and had not developed jaundice, the nurse's visit revealed that jaundice had occurred and that another physician had been in attendance. In such cases the name of the second physician was obtained from the patient or the member of the family who was interviewed, and the clinical data were secured from him.

Another important purpose of the home visit was to obtain data on the incidence of jaundice among the household contacts of the recipient. If infectious hepatitis had occurred among such contacts, it would be difficult to attribute a similar syndrome in the recipient to the administration of plasma.

No home visits were made in instances in which patients were known to have died. When death had occurred between one and six months after the transfusion, a letter was forwarded to the physician who attended the patient during the final illness, to inquire whether any syndrome suggestive of homologous serum jaundice had occurred and, if so, whether it had been a primary or contributory cause of death. Patients dying within one month of the transfusion were eliminated from the study.

The criterion established for the diagnosis of homologous serum jaundice was a bed-confining illness associated with clinical manifestations of acute hepatitis including jaundice, not accounted for by other recognized pathologic conditions and occurring between one and six months after the transfusion. The latter are considered to be the extremes of the incubation period, although this is usually between two and four and one-half months.[1] As most surviving recipients had returned to their homes shortly after the administration of plasma, it was not considered feasible to attempt to detect possible cases of hepatitis without jaundice, a diagnosis difficult to make without laboratory assistance.

2. *Observations.*—Of the 924 recipients in the original sample, there were 649 who proved to be suitable for study and for whom adequate information was obtained (table 1). Home visits were made to 602 of

From the Office of Medical Administration and the Division of Communicable Diseases, New York State Department of Health.
Miss Lillian Johnston, Consultant Nurse in Communicable Diseases, was in charge of the home visiting of the plasma recipients.

1. Neefe, J. R.: Recent Advances in the Knowledge of "Virus Hepatitis," M. Clin. North America **30**: 1407-1443 (Nov.) 1946.

these persons, the data being secured from the physicians alone in the remaining 47.

The results of the study are presented in table 2. In 29 patients there developed a syndrome characteristic of homologous serum jaundice. In 26 of these, the information with regard to the illness was either supplied directly by the physician or confirmed by him after being first obtained from the patient or his family. In the remaining 3, either there was no physician in attendance or it was not possible to obtain information from him. However, the clinical picture was typical, and the cases were included as examples of homologous serum jaundice.

Based on the entire group of 649 recipients, the incidence of homologous serum jaundice is 4.5 per cent. If one excludes the 44 patients who died between one and six months after transfusion without developing jaundice, on the grounds that they might have done so had they survived longer, the incidence would be 4.8 per cent. In contrast, there were no cases of jaundice reported among the 1,597 household contacts of the recipients. This latter group included 56 persons who were contacts of the recipients in whom jaundice had developed.

Table 3 tabulates the pertinent data concerning each recipient with homologous serum jaundice. The incu-

TABLE 3.—*Significant Data Concerning Plasma Recipients in Whom Homologous Serum Jaundice Developed*

Case	Age, Years	Sex	Original Illness	Other Blood Therapy	Days Between First Plasma Transfusion and Onset of Jaundice	Remarks
A 1	52	♀	Carcinoma of breast	None	68	Recovery after severe illness lasting 4 weeks; subjected to laparotomy for possible obstructive jaundice; operative observations compatible with infectious hepatitis
A 2	73	♀	Abdominal tumor	None	74	Recovery after mild illness lasting 3 weeks
A 3	63	♂	Nephrolithiasis	None	75	Recovery after moderately severe illness lasting 3 weeeks
A 4	35	♀	Nephrolithiasis	None	106	Recovery after mild illness lasting 3 weeks
A 5	76	♂	Carcinoma of prostate	Whole blood	72	Died 14 days after onset of jaundice; physician stated hepatitis was contributory cause of death, carcinoma being primary cause
A 6	65	♀	Ovarian cyst	None	137	Recovery after illness, which was mild but prolonged for 6 weeks
A 7	54	♂	Bleeding peptic ulcer	Whole blood	65	Recovery after mild illness lasting 2 weeks
A 8	61	♀	Chemical pneumonia	Not stated	57	Severe illness necessitating hospitalization; improved in 3 weeks but relapsed 6 weeks later; then confined to bed again for 10 weeks; final recovery
A 9	25	♂	Laceration of vein	Whole blood	71	Recovery after moderately severe illness lasting 3½ weeks
A 10	52	♀	Cirrhosis of liver	Whole blood	90	Recovery after mild illness lasting 3 weeks; case included despite original illness with cirrhosis, because of classic incubation period and symptoms and lack of jaundice at any other time before or after; patient followed 6 months after bout of jaundice; had been working for last 5 months; cirrhosis apparently not progressive
A 11	60	♀	Hyperthyroidism	None	70	Recovery after severe illness lasting 2 weeks
A 12	71	♀	Uterine prolapse	None	100	Recovery after severe illness lasting 6 weeks
A 13	57	♀	Brain tumor	None	79	Recovery after moderately severe illness lasting 2 weeks
A 14	82	♂	Obstruction of urinary tract	Whole blood	132	Recovery after mild illness lasting 4 weeks.
A 15	28	♂	Peritonitis	None	66	Recovery after severe illness lasting 10 days
A 16	52	♂	Bleeding peptic ulcer	None	125	Died after severe illness of 26 days; death ascribed to homologous serum jaundice
A 17	37	♂	Burns	Not stated	155	Recovery after mild illness lasting 10 days
A 18	62	♂	Intestinal obstruction	Whole blood	67	Recovery after severe illness lasting 10 days
A 19	53	♂	Cholecystitis	None	58	Recovery after mild illness lasting 1 week; case included despite original illness with cholecystitis because of classic incubation period and symptoms and absence of evidences of biliary tract disease at time of jaundice; jaundice not present at time of original illness
A 20	50	♀	Parturition	None	102	Recovery after mild illness lasting 2 weeks
A 21	44	♀	Carcinoma; site unknown	None	120	Recovery after moderately severe illness lasting 8 weeks
A 22	74	♀	Circulatory collapse	None	113	Recovery after moderately severe illness lasting 8 weeks
A 23	72	♀	Hernia	None	102	Recovery after moderately severe illness lasting 8 weeks.
A 24	70	♀	Gangrene of foot	Whole blood	130	Died 4 weeks after onset of jaundice; primary cause of death stated as gangrene, with jaundice possibly a contributory cause
A 25	75	♂	Incarcerated hernia	None	92	Died 4 days after onset of jaundice; diagnosis, acute yellow atrophy of liver
A 26	58	♂	Cholecystitis	None	76	Recovery after mild illness lasting 2½ weeks; case included despite original illness with cholecystitis because of classic incubation period and symptoms and absence of evidences of biliary tract disease at time of jaundice; jaundice not present at time of original illness
A 27	56	♂	Dysentery	None	80	Recovery after moderately severe illness lasting 2½ weeks; patient had history of exposure to carbon tetrachloride over 2 year period, but symptoms and period of time between plasma therapy and onset of illness were considered typical of homologous serum jaundice
A 28	30	♀	Abruptio placentae	Whole blood	88	Recovery after moderately severe illness lasting 4 weeks
A 29	72	♂	Malignancy of colon	Whole blood	139	Recovery after moderately severe illness prolonged over 4 months

bation period varied between fifty-seven and one hundred and fifty-five days, which is consistent with the observations of others.[1] Distribution between the sexes was about equal, there being 15 women and 14 men.

The number of patients in the older age group was striking. The median age for the jaundice cases was 57 years compared to 39 years for the recipients in whom jaundice did not develop. The number of cases of jaundice is too small to warrant a breakdown by age into decades. However, a broader division revealed no cases of jaundice in recipients less than 20 years of age, an incidence of 2.2 per cent among the recipients between 20 and 49 and an incidence of 8.7 per cent among those who were 50 years of age or more (table 4). These differences are statistically significant.

TABLE 4.—*Distribution According to Age of Plasma Recipients in Whom Homologous Serum Jaundice Developed*

Age in Years	Total Cases	Homologous Serum Jaundice	
		Number	Percentage
0 to 19	78	0	0.0
20 to 49	319	7	2.2
50 to 89	252	22	8.7
Total	649	29	4.5

In 19 instances the illnesses were considered to have been either mild or moderately severe. Nevertheless, incapacitation in these instances varied from one to six weeks. Six patients who recovered were considered to have been severely ill. On 1 of these (case A 1) a laparotomy had been performed because of the possibility of an obstructiion of the biliary tract. Another (case A 8) had been confined to bed for a total period of thirteen weeks because of a relapse subsequent to initial recovery.

Four deaths occurred. In 2 instances death was attributed directly to homologous serum jaundice (cases A 16 and A 25). In the other 2 patients the clinical data indicated that death was due to an unassociated preexisting illness, with homologous serum jaundice superimposed and playing a contributory role (cases A 5 and A 24). It is impossible to state whether these persons would have survived somewhat longer if hepatitis had not developed. Thus, the fatality rate is at least 6.9 per cent, and possibly 13.8 per cent if the latter 2 cases are included.

3. *Distribution of the Icterogenic Agent Among Various Lots of Plasma.*—Unfortunately, a large proportion of the transfusion reports did not state the lot number of the plasma, thus complicating the study of the distribution of the icterogenic agent. Among the 29 patients with jaundice, the lots of the administered plasma could be identified in only 19. This group had received plasma from 22 different lots. Only 2 of the patients had received plasma from the same lot, indicating that at least 18 of the lots given to the 19 patients were icterogenic.

Further study of the lot which had been given to 2 recipients in whom jaundice developed revealed that it had also been administered to 9 other traceable patients. All 9 had survived six months thereafter, and in none had jaundice developed. The attack rate among the traceable recipients of this lot is therefore about 22 per cent. Twenty of the remaining 21 lots were reported to have been administered to from 1 to 7 other patients without causing jaundice.

A total of 385 identifiable lots were reported as having been given to the entire group of plasma recipients. Of these, 18, or 4.7 per cent, appeared responsible for jaundice. The latter is a minimum figure, as 368 of the identifiable lots had been administered to 5 or less patients, and in view of the apparently low attack rate among recipients many icterogenic lots may have remained undetected because of the small number of trials.

PART B: INVESTIGATION OF RECORDED DEATHS ASCRIBED TO ACUTE HEPATITIS

In the second part of this study, a group of patients who died of some form of acute hepatitis was investigated in order to disclose whether the deaths might be attributed to jaundice associated with plasma or blood therapy. The patients were selected from those for whom physicians had submitted death certificates listing such diagnoses as acute hepatitis, infectious hepatitis, homologous serum jaundice or acute yellow atrophy. The follow-up procedures were carried out by medical personnel of the various district offices of the New York State Department of Health, and the information set down was obtained from the records of the hospital or the attending physician or by interview of the patient's family.

Early in 1946 a random sample of 8 deaths was studied, and it was disclosed that in 3 of these the patients had had transfusion therapy within six months of the onset of the fatal illness. Therefore it was decided to carry out this type of study on all deaths due to hepatitis. From Sept. 16, 1946 through April 15, 1947 a total of 43 such reports was received by the State Department of Health. Investigation of these deaths showed that 12 of the 43 patients had a history of transfusion therapy.

TABLE 5.—*Significant Data Concerning Recorded Cases of Fatal Hepatitis Associated with Transfusion Therapy*

Case	Age in Years	Sex	Original Illness	Transfusion Therapy	Days Between First Transfusion and Onset of Jaundice
B 1*	66	♂	Thigh injury	Plasma	70
B 2*	76	♂	Duodenal ulcer	Plasma	148
B 3*	70	♂	Intestinal obstruction	Plasma	104
B 4	54	♀	Gastric ulcer	Whole blood	61
B 5	5	♀	Unknown	Plasma	144
B 6*	66	♂	Carcinoma of rectum	Plasma	68
B 7*	22	♀	Ovarian abscess	Plasma	73
B 8	48	♀	Compound fracture of legs	Plasma	164
B 9*	20	♀	Postpartum hemorrhage	Plasma	67
B 10*	34	♀	Ectopic pregnancy	Plasma	43
B 11*	18	♀	Burns	Plasma and whole blood	62
B 12	61	♂	Duodenal ulcer	Whole blood	104
B 13*	45	♂	Hydronephrosis; kidney stones	Plasma	47
B 14	74	♀	Hip fracture	Plasma	52
B 15*†	75	♂	Incarcerated hernia	Plasma	92

* Autopsy performed. † Same case as A 25 (table 3).

Thus, 15 of the 51 fatal cases investigated appeared to be associated with previous transfusions of plasma or blood. The pertinent data concerning these cases are recorded in table 5. Clinically, each of the cases met the criterion for the diagnosis of homologous

serum jaundice given in part A of this study. Autopsy was performed in 10 instances, and in each the presence of acute hepatitis was established as the primary cause of death.

In 14 instances the illness which existed at the time of the transfusion had completely subsided before the onset of jaundice. The only exception was case B 6, in which the original illness was carcinoma of the rectum. This latter case was among those in which autopsies were performed, and no evidence of hepatic metastasis was demonstrated.

Twelve patients had received pooled plasma only, and 1 patient had been given pooled plasma and whole blood. In each instance the plasma had been obtained from the state department of health. Two patients had received whole blood only. The period between the day of the first transfusion and the onset of jaundice varied from forty-three to one hundred and sixty-four days. Distribution by sex was approximately equal, there being 8 women and 7 men. The median age of the 14 persons was 54 years.

Lot numbers were available for only 6 of the 13 patients who had received plasma, and in none of these was the same lot involved. However, the plasma lot administered in case B 14 was also found accountable for the jaundice which occurred in 3 nonfatal cases. (The latter cases are not among those disclosed in the first part of this study.) Since a total of 7 persons received units of this lot, the attack rate in this group was 57 per cent. Indirect evidence that other lots of plasma may have accounted for multiple cases of infection was indicated by the fact that 3 deaths occurred at one hospital and 2 each at two other hospitals.

COMMENT

A follow-up investigation of a large series of persons who received transfusions with pooled plasma has indicated that this form of therapy carries a significant risk of a serious and possibly fatal complication. The number of persons receiving plasma in Upstate New York is at least 15,000 per year.[2] With a 4.5 per cent incidence of homologous serum jaundice in the recipients of plasma, one can estimate a total of 675 cases annually.

Investigation of recorded deaths due to hepatitis revealed that 12 which were attributable to homologous serum jaundice occurred during a seven month period. This would be an average of 21 deaths per year. This is less than might be expected with a fatality rate of 6.9 per cent, but the rate was based on a small number of deaths. It must also be considered that there may be many cases which are missed because of erroneous reporting.

The incidence of 4.5 per cent is lower than that reported by Spurling, Shone and Vaughan.[3] These authors conducted a similar type of study and followed up patients who had received blood products supplied by the Northwest London Blood Supply Depot. They found 77 frank (7.3 per cent) and 14 doubtful (1.3 per cent) cases of homologous serum jaundice among 1,054 persons followed five months or longer after receiving pooled plasma or serum. (The doubtful cases were those in which the jaundice was most likely attributable to some other cause. In the present study, such cases were eliminated.) However, their cases[3] appear to have been less severe, as only 1 of the frank cases involved serious illness. There were only 2 deaths, and these occurred among the doubtful cases.

Grossman and Saward[4] reported 8 cases of homologous serum jaundice occurring among the recipients of 501 transfusions of commercial pooled plasma at the Northern Permamente Foundation Hospital. This indicates an incidence of over 2 per cent, as the actual number of recipients was less than 501. No follow-up was carried out to determine the occurrence of jaundice in those who remained at home. There was 1 death among the 8 cases, giving a fatality rate of 12.5 per cent.

Scheinberg, Kinney and Janeway[5] have recently reported 11 cases of hepatitis, including 4 fatalities, which were probably due to prior transfusions of plasma or blood. Plasma appeared to be the more likely causative agent. Based on the number of plasma transfusions given at Peter Bent Brigham Hospital over the period during which these persons had originally been hospitalized, the calculated incidence was 1 case of jaundice in every 86 plasma transfusions. However, follow-up was limited to those recipients who were of special interest because of their original disease or who had received plasma already suspected of being icterogenic.

The failure to find any instances of jaundice among the household contacts rules against the possibility that the jaundice occurring in the recipients of plasma might have been due to infectious hepatitis rather than to homologous serum jaundice. The household contacts included large numbers of children, who would be more susceptible to infectious hepatitis were it occurring in the community.[1] In contrast, most of the plasma recipients in whom jaundice developed belonged to the older age group, among whom infectious hepatitis is less likely to occur. Grossman and Saward[4] also observed an absence of secondary cases in the families of patients with homologous serum jaundice. On the other hand, in a study of the families of 77 patients with infectious hepatitis they found that 13, or 17 per cent, of the members had or subsequently acquired jaundice.

At least 9 patients whose cases are included in part A of this study are known to have received whole blood in addition to pooled plasma transfusions, and the possibility does exist that the whole blood may have been responsible for the jaundice in some of these. However, this possibility seems remote in view of several reports which demonstrate a significantly greater incidence of jaundice in recipients of pooled material than in recipients of blood, plasma or serum from individual donors.[6] The most extensive study is that of Spurling, Shone and Vaughan.[3] Although these investigators observed a high incidence of jaundice after transfusions of pooled plasma or serum (vide supra), they were able to discover no frank and only 6 doubtful cases among 891 recipients of whole blood from individual donors.

2. New York State Department of Health: Unpublished data.

3. Spurling, N.; Shone, J., and Vaughan, J.: The Incidence, Incubation Period, and Symptomatology of Homologous Serum Jaundice, Brit. M. J. **2**: 409-413 (Sept. 21) 1946.

4. Grossman, C. M., and Saward, E. W.: Homologous Serum Jaundice Following the Administration of Commercial Pooled Plasma, New England J. Med. **234**: 181-183 (Feb. 7) 1946.

5. Scheinberg, I. H.; Kinney, T. D., and Janeway, C. A.: Homologous Serum Jaundice: A Problem in the Operation of Blood Banks, J. A. M. A. **134**: 841-848 (July 5) 1947.

6. (*a*) Spurling, Shone and Vaughan.[3] (*b*) Loutit, J. F., and Maunsell, K.: Prevention of Homologous Serum Jaundice, Brit. M. J. **2**: 759-761 (Dec. 1) 1945. (*c*) Schindler-Baumann, J.: Blood Transfusions and Epidemic Hepatitis, Praxis **35**: 112-113 (Feb. 14) 1946.

Part B of the current study brings forth additional evidence with regard to the greater hazard associated with plasma as compared with whole blood. Of 15 deaths ascribed to this disease, 12 persons had received plasma, 2 whole blood and 1 both plasma and blood. A survey made in Upstate New York showed that the ratio of whole blood to plasma transfusions was about 2:1.[2] Yet the ratio of whole blood to plasma transfusions among these 14 cases of homologous serum jaundice was at least 1:4 and possibly 1:6.

The significantly higher incidence of jaundice among plasma recipients who were more than 50 years of age is worthy of comment. In their monograph on icterus subsequent to vaccination against yellow fever, Fox, Manso, Penna and Para [7] have discussed the possibility that lowered hepatic resistance associated with chronic intoxication of the liver or dietary deficiency may serve as a factor in rendering persons susceptible to the icterogenic agent contained in blood products. It is possible that such a factor may have been responsible for the age distribution of cases observed in the present study. In elderly patients hepatic impairment as demonstrated by liver function tests has been shown to be common [8] and latent vitamin deficiency is prevalent.[9]

The possibility was suggested that the size of the transfusions or the use of two or more different lots may have been a factor in determining the recipients in whom jaundice would develop. However, according to the available information, 20 of the 29 jaundice patients had received a single unit of plasma only. The average number of units received by the 29 patients was about 1.5, which is identical with that received by the entire group of plasma recipients.

The frequency with which homologous serum jaundice may occur as a complication of pooled plasma therapy calls for immediate and intensive research aimed at the development of methods for the elimination of the virus. These studies have indicated that the causative agent is present in many different lots of plasma. The exclusion of donors with a history of jaundice and the performance of various laboratory tests on all others will serve to eliminate only a fraction of the asymptomatic carriers of the virus. Single injections of gamma globulin did not lower the incidence of subsequent jaundice among plasma recipients in the military services.[10] Encouraging results were obtained when two injections were given 30 days apart,[11] but the complication was not entirely eliminated and the procedure may be difficult to carry out in civilian life because of the failure of the patients to return. The use of smaller pools may cut down the dissemination of a virus present in any one specimen, but the hazard will still exist. It must also be considered that reduction of the number of specimens per pool below eight will not allow for adequate dilution of isoagglutinins.

Two approaches to this problem offer much promise. First, it has been demonstrated that icterogenic plasma units lose their ability to transmit jaundice after exposure to irradiation with ultraviolet light.[12] The intensive method of applying ultraviolet radiation to bacteria and viruses, as developed by Levinson and his co-workers,[13] may provide a means of irradiating plasma for large-scale processing.

The second possibility is to substitute the albumin fraction for whole plasma in all instances in which such substitution would be clinically warranted.[14] The stability of the albumin fraction as derived by the newer methods of preparation is so great that it can be heated for ten hours at 60 C. in the final container before distribution. This process is believed to inactivate the virus.

Much further study is necessary to demonstrate whether irradiated plasma and the albumin fraction are absolutely virus-free. Also, it will take some time to prepare either material in sufficient quantities to meet all needs. Therefore there would appear to be no point in recalling the pooled plasma being distributed at the present time. However, it must be emphasized that this plasma should be administered only when the clinical indications are absolute, so that the benefits to be derived clearly outweigh the risk of contracting homologous serum jaundice.

SUMMARY

1. Follow-up of 649 patients who received transfusions with dried pooled plasma revealed a subsequent incidence of homologous serum jaundice in 4.5 per cent.

2. The causative agent appears to be widely distributed, but the attack rate is variable.

3. The attack rate was significantly higher among persons who were 50 years of age or more. No relation of the attack rate to the amount of plasma administered could be demonstrated.

4. Investigation of 51 deaths attributed to acute hepatitis revealed 15 cases in which the patients had received transfusion therapy during the six months prior to death. Twelve of these had received plasma only.

5. Twelve deaths attributable to homologous serum jaundice were reported in Upstate New York during a seven month period.

6. Plasma, as well as other forms of transfusion therapy, should be administered only when the clinical indications are absolute, so that the benefits to be derived clearly outweigh the risk of contracting homologous serum jaundice.

7. Immediate, intensive research toward the elimination of the causative agent is imperative.

ADDENDUM.—Subsequent to the submission of this article for publication, a physician belatedly provided information that homologous serum jaundice had developed in a plasma recipient who was originally included in the unlocated group (table 1). The patient was a woman aged 30 who received a transfusion with pooled plasma following an operation for pelvic inflammatory disease. The syndrome of acute hepatitis appeared thirty days later, and the patient was severely ill for a two week period.

7. Fox, J. P.; Manso, C.; Penna, H. H., and Para, M.: Observations on the Occurrence of Icterus in Brazil Following Vaccination Against Yellow Fever, Am. J. Hyg. **36**: 68-116 (July) 1942.

8. Rafsky, H. A., and Newman, B.: Liver Function Tests in the Aged, Am. J. Digest. Dis. **10**: 66-69 (Feb.) 1943.

9. Rafsky, H. A., and Newman, B.: Nutritional Aspects of Aging, Geriatrics **2**: 101-104 (March-April) 1947.

10. Duncan, G. G.; Christian, H. A.; Stokes, J., Jr.; Rexer, W. F.; Nicholson, J. T., and Edgar, A.: An Evaluation of Immune Serum Globulin as a Prophylactic Agent Against Homologous Serum Hepatitis, Am. J. M. Sc. **213**: 53-57 (Jan.) 1947.

11. Grossman, E. B.; Stewart, S. G., and Stokes, J., Jr.: Post-Transfusion Hepatitis in Battle Casualties, and a Study of Its Prophylaxis by Means of Human Immune Serum Globulin, J. A. M. A. **129**: 991-994 (Dec. 8) 1945.

12. (*a*) Oliphant, J. W.: Jaundice Following Administration of Human Serum, in Harvey Lectures, 1943-1944, Baltimore, Williams & Wilkins Company, 1944, vol. 39, pp. 254-272. (*b*) Oliphant, J. W., and Hollaender, A.: Homologous Serum Jaundice: Experimental Inactivation of Etiologic Agent in Serum by Ultraviolet Irradiation, Pub. Health Rep. **61**: 598-602 (April 26) 1946.

13. Levinson, S. O.; Milzer, A.; Shaughnessy, H. J.; Neal, J. L., and Oppenheimer, F.: A New Method for the Production of Potent Inactivated Vaccines with Ultraviolet Irradiation, J. Immunol. **50**: 317-329 (June) 1945.

14. (*a*) Janeway, C. A.: Other Uses of Plasma Fractions with Particular Reference to Serum Albumin, Ann. Int. Med. **26**: 368-376 (March) 1947. (*b*) Scheinberg, Kinney and Janeway.[5]

ANURIA TREATED BY PERITONEAL IRRIGATION

LAURENCE A. GROSSMAN, M.D.
EDWIN M. ORY, M.D.
and
DAN H. WILLOUGHBY, M.D.
Nashville, Tenn.

The treatment of renal failure by the substitution of an artificial kidney has long been considered, and animal experimentation and clinical trials have been carried out. The employment of the peritoneum as a dialyzing membrane constitutes a promising approach to this problem. Its use has not been feasible in the past for several reasons: (1) the lack of a satisfactory lavage fluid, that is, a fluid that would not cause significant disturbance of water and electrolyte balance; (2) the great susceptibility of the peritoneum to infection and the seriousness of such infection, and (3) the technical difficulties with clotting in carrying out the procedure.

Recent developments have largely overcome these difficulties. The work of Abbott and Shea [1] using nephrectomized dogs resulted in the composition of a suitable lavage fluid. Fine, Frank and Seligman [2] improved the technic of peritoneal irrigation in human beings. They successfully treated a patient with uremia and showed that this form of therapy is practical in other cases. Careful asepsis has lessened the danger of peritoneal infection, and new antibiotics are of great value in the prevention and control of infection. Heparin, which reduces the formation of fibrin, has made continuous peritoneal irrigation possible.

From the limited experience thus far reported, peritoneal irrigation is most valuable in renal failure which is potentially reversible and which may be encountered in transfusion reactions, sulfonamide toxication, mercurial poisoning and reflex anuria.

REPORT OF CASE

History.—L. F., a married white woman aged 38, was admitted to the obstetric service of Vanderbilt University Hospital on Sept. 30, 1946, because of difficult labor. This was her third pregnancy. It had been uncomplicated until the month prior to admission, when she began to have headache, vertigo, mild edema of the ankles, nocturia and frequency of urination. During the three days before entry oliguria was noted. There was no history of previous renal disease. Twelve hours before admission labor began with spontaneous rupture of the membranes. Despite hard labor there was no progress.

Physical Examination.—Examination revealed a moderately obese woman in active labor. She was alert and afebrile. The skin and scleras were faintly icteric. The ocular fundi were normal. The heart and lungs were normal. The abdomen was distended with a full term gravid uterus. Tenderness of the costovertebral angle was not present. There was mild edema of the legs below the knees. Examination of the blood revealed a white cell count of 20,000 with a normal differential formula and a hemoglobin level of 12.5 Gm.

Course.—The patient was unable to void at the time of admission. The bladder was catheterized and 30 cc. of bloody urine was obtained. During the following eight hours there were strong regular uterine contractions, but the patient did not progress beyond the first stage of labor. Thom's pelvimetry revealed a mild cephalopelvic disproportion. Because of this disproportion and the history of several vaginal examinations prior to admission a Porro cesarean section was performed with the patient under spinal anesthesia induced by the use of 150 mg. procaine hydrochloride. The patient tolerated the operation well. A viable child was delivered. Blood loss was estimated at 2,000 cc., and a transfusion of 1,500 cc. type O whole blood was administered. At no time did the blood pressure fall to shock levels. The bladder was catheterized at the end of the operation, but no urine was obtained.

After delivery the patient's jaundice increased. On the third hospital day, because of continued anuria cystoscopic examination was performed. The bladder wall appeared edematous and hemorrhagic. Ureteral catheters were passed to each kidney pelvis but no urine was obtained. The renal pelves were irrigated, and the catheters were left in place for four days. Subsequent to this procedure the temperature rose to 101 F., then fell rapidly to normal. There was a rising azotemia and other hematic chemical changes characteristic of renal failure during the eight days following the operation (fig. 1 and table 1). A concomitant fall in the red blood cell count and hemoglobin

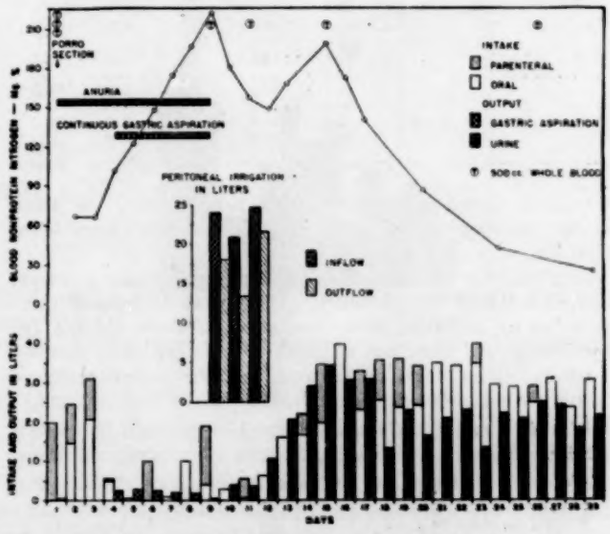


Fig. 1.—Fluid balance and course of azotemia.

level occurred during this period. The red cell count fell from 4.65 to 2.12 million per cubic millimeter, and the hemoglobin value fell from 12.5 to 6.0 Gm. per hundred cubic centimeters. The icterus index ranged from 19 to 23. These changes progressed until peritoneal irrigation was instituted.

Signs of adynamic ileus developed on the fourth hospital day. Continuous gastric aspiration with Wangensteen suction was started with considerable relief of the abdominal distention; however, no peristaltic activity was observed. In the period between the fifth and ninth hospital days the patient received only small amounts of fluid because of the presence of moderate edema (fig. 1). The fluids which were administered consisted of whole blood and 5 per cent dextrose in isotonic sodium chloride solution. Fifty cubic centimeters of 50 per cent dextrose was given on a single occasion.

Irrigation Period.—On the ninth hospital day and the eighth day of anuria the nonprotein nitrogen level had risen to 224 mg. per hundred cubic centimeters, and the patient was drowsy. Peritoneal irrigation was then initiated. Without removing the patient from the bed she was prepared and draped as for a surgical procedure. With the patient under local anesthesia a mushroom catheter was inserted through a small incision in the right upper quadrant and sutured in place. Similarly, a sump drain was inserted into the abdominal cavity through an incision in the left lower quadrant. The irrigation system is illustrated in figure 2.

From the Department of Medicine, Vanderbilt University School of Medicine.

1. Abbott, W. E., and Shea, P.: Treatment of Temporary Renal Insufficiency (Uremia) by Peritoneal Lavage, Am. J. M. Sc. **211**: 312-319, 1946.

2. Frank, H. A.; Seligman, A. M., and Fine, J.: Treatment of Uremia After Acute Renal Failure by Peritoneal Irrigation, J. A. M. A. **130**: 703-705 (March 16) 1946. Seligman, A. M.; Frank, H. A., and Fine, J.: Treatment of Experimental Uremia by Means of Peritoneal Irrigation, J. Clin. Investigation **25**: 211-219, 1946. Fine, J.; Frank, H. A., and Seligman, A. M.: Treatment of Acute Renal Failure by Peritoneal Irrigation, Ann. Surg. **124**: 857-878, 1946.

The irrigation fluid had a composition similar to that of solution *A* of Abbott and Shea,[1] modified only by the addition of penicillin and heparin (table 2). The fluid was administered from liter flasks, and the rate of inflow was adjusted to 1 liter per hour. The volume of outflow was measured hourly. The outflow was spontaneous, no suction being applied. The rate of outflow varied considerably from hour to hour, at times greatly exceeding the volume of inflow and at other times being much less.

After peritoneal irrigation was instituted the course of events changed decidedly for the better. There were no signs of overhydration or underhydration; the blood pressure did not fall significantly, and there was no pulmonary congestion or increase in edema. Drowsiness disappeared, and the patient remained mentally clear. Forty-five cubic centimeters of dark bloody urine was obtained by catheterization during the first day of irrigation. Following this there was a rapid increase in urinary output, as illustrated in figures 1 and 3. During the three day irrigation period, the nonprotein nitrogen level of the blood fell from 224 to 148 mg. per hundred cubic centimeters, with a corresponding decline in the creatinine and serum phosphorus concentrations.

The total nitrogen excretion by urine and lavage fluid is shown in figure 3 and table 3. A total of 71.4 Gm. nitrogen was eliminated in the irrigation fluid, while 4.07 Gm. was excreted in the urine during the same period. The lavage fluid during the first two days of the irrigation remained sterile. On the third day Alcaligenes fecalis and Escherichia coli were cultured. After seventy-two hours the irrigation was discontinued and 0.5 Gm. of streptomycin was instilled intraperitoneally. During the preceding twenty-four hours the urinary output had been 1,080 cc., and it was considered that there was sufficient recovery of renal function to warrant discontinuing the irrigation. On the third day of peritoneal irrigation (eleventh hospital day) for the first time peristalsis was audible and the patient had a spontaneous bowel movement.

Postirrigation Period.—During the three days following discontinuation of peritoneal irrigation the blood nonprotein nitrogen concentration rose to 200 mg. per hundred cubic centimeters; there was a concomitant rise in blood creatinine and serum phosphorus values, and a fall in serum calcium and plasma carbon dioxide. This occurred notwithstanding an increasing urinary output and total nitrogen excretion. After the third postlavage day (fifteenth hospital day) there was a continuous fall in the nonprotein nitrogen level, and other chemical values of the blood reverted gradually to normal. The nonprotein nitrogen was 27 mg. per hundred cubic centimeters on the twenty-ninth hospital day. After the initial fall in the red blood cell count and hemoglobin during the operative procedure, the anemia persisted despite three transfusions. The hemoglobin level ranging between 6 and 7 Gm. per hundred cubic centimeters. There was a leukocytosis; the white cell count varied between 15,000 and 25,000 until the twentieth hospital day, at which time it fell to normal. The edema gradually subsided during the week following peritoneal irrigation.

Table 4 summarizes the results of daily urinalyses. There was heavy pyuria throughout most of the course. Cultures were persistently positive for Proteus vulgaris. For the first three and a half weeks there was a slight albuminuria. The specific gravity ranged between 1.008 and 1.016. On the twenty-eighth hospital day of the patient there developed an acute pyelonephritis with chills, temperature of 103 F. and frequency and burning on urination. During the next three days there were daily elevations of temperature ranging between 103 and 105.6 F. The strain of P. vulgaris which was isolated from the urine was found to be inhibited in vitro by a concentration of 25 units of penicillin per cubic centimeter and also by streptomycin in the same unit concentration. Penicillin in doses of 100,000 units every three hours was administered for thirteen days. The temperature promptly fell to normal, the frequency and dysuria subsided and the pyuria decreased. However, urine cultures continued to yield a moderate growth of P. vulgaris. Pyuria subsequently increased. The sensitivity of P. vulgaris to penicillin was again determined, and on this occasion the organism was found to be resistant to more than 1,000 units of the drug per cubic centimeter. It was also found to be a potent penicillinase producer. Sulfadiazine in doses of 5 Gm. a day was given between the forty-third and forty-eighth day of hospitalization without beneficial effect.

At the time of discharge on the forty-eighth hospital day the patient was ambulatory; she had no symptoms referable to the urinary tract and was afebrile. The blood chemical determinations were within normal limits and the hemoglobin level was

TABLE 1.—*Blood Chemical Analyses*

Hospital Day	Blood NPN, Mg./100 Cc.	Blood Creatinine, Mg./100 Cc.	Plasma, CO_2 Vol. %	Serum Calcium, Mg./100 Cc.	Serum Phosphorus, Mg./100 Cc.	Serum Protein, Gm./100 Cc.	Serum Chloride, mEq./L.
Anuria							
2	67	....	....	....	....	....	....
3	67	....	....	....	....	....	....
4	112	....	....	7.9	....	....	....
5	124	14.4	45.7	....	....	4.39	....
6	148	....	41.2	....	....	....	....
7	176	19.2	....	6.5	12.3	5.09	81.6
8	196	....	37.4	....	....	....	....
9	224	23.4	36.2	6.7	15.4	5.06	79.2
Peritoneal Irrigation							
10	180	....	41.2	6.7	9.4	4.86	86.7
11	156	17.4	43.0	8.2	9.2	4.28	91.8
12	148	15.1	39.3	8.2	8.0	4.15	91.5
Recovery of Renal Function							
13	168	16.8	36.2	....	....	....	....
15	200	16.0	30.5	6.5	10.2	4.45	95.4
16	172	13.3	33.4	....	....	....	....
17	144	....	31.9	8.3	7.5	5.28	94.8
20	87	3.3	37.2	....	....	....	....
24	44	2.2	43.8	10.3	3.8	5.58	104.1
29	27	....	50.4	....	....	....	....
68	25	1.0	57.9	10.6	3.9	6.41	107.1
105	32	....	53.2	10.6	3.9	6.88	....

TABLE 2.—*Composition of Lavage Fluid*

Solutes per 1,000 cc. distilled water	
Sodium chloride	6.10 Gm.
Calcium chloride	0.23 Gm.
Potassium chloride	0.35 Gm.
Sodium phosphate (monobasic)	0.07 Gm.
Magnesium chloride	0.05 Gm.
Sodium bicarbonate	2.20 Gm.
Dextrose	5 to 10 Gm.
Heparin	0.002 Gm.
Penicillin	10,000 Units

TABLE 3.—*Peritoneal Outflow Fluid*

Hospital Day	9	10	11
Specific gravity	1.015	1.014	1.013
Nonprotein nitrogen, mg./100 cc.	184	144	37
Urea nitrogen, mg./100 cc.	146	...	...
Creatinine, mg./100 cc.	...	15.9	...
Total protein, Gm./100 cc.	0.24	0.15	0.03
Chloride, mEq./L.	97.2	91.2	93.0
CO_2 combining power, vol. %	41.2	41.2	57.9
Culture	Sterile	Sterile	Esch. coli A. fecalis

TABLE 4.—*Summary of Urinalyses*

Hospital Day	Specific Gravity	Albumin	Pyuria	Culture	Therapy
1	1.016	+	++	.....	.....
2 to 8		Anuria			
9 to 33	1.010 to 1.016	+	++++	P+++	Penicillin, 800,000 units daily 31st to 43d day
34 to 39	1.010 to 1.016	0	0	P++	
40 to 48	1.008 to 1.013	0	+++	P++++	Sulfadiazine, 5 Gm. daily 43d to 48th day
67 to 68	1.018	+	+	C+	.....
		−		P++	

C, Esch. coli and P, p. vulgaris.

13 Gm. per hundred cubic centimeters. The Fishberg test showed a maximum urinary concentration of 1.016. Phenolsulphonphthalein excretion totalled 40 per cent in two hours; specimens collected at fifteen, thirty, sixty and one hundred and twenty minutes each contained 10 per cent of the dye. The urea clearance was 49.9 per cent of the average normal value. Moderate pyuria and a heavy bacilluria were still present.

The patient was reexamined on the sixty-seventh and sixty-eighth day after the onset of anuria. Except for inconstant nocturia she had been asymptomatic during the three week period. The blood nonprotein nitrogen level was 25 mg. per hundred cubic centimeters. The maximum specific gravity of the urine was 1.018. Phenolsulphonphthalein excretion was 15 per cent at thirty minutes and 20 per cent at one hour, with a total excretion of 35 per cent in one hour. The urea clearance was 55 per cent of the average normal value. There was a slight pyuria, and culture of the urine yielded both P. vulgaris and Esch. coli. Reexamination on the one hundred and fifth day did not reveal any change. The blood nonprotein nitrogen was 32 mg. per hundred cubic centimeters; there was pyuria, and P. vulgaris was present in the urine.

COMMENT

It has not been possible to establish the etiologic basis of the anuria in this case. Likely causes that have been suggested are (1) reflex anuria, (2) cortical necrosis, (3) transfusion reaction and (4) the so-called hepatorenal syndrome. Of these causes it is our opinion that reflex anuria was the etiologic and physiologic mechanism operating in this case. The cephalopelvic disproportion with a prolonged and difficult labor, followed by an operation during which there was manipulation and trauma to the bladder and lower part of the urinary tract constitutes an ideal set of circumstances for the development of this condition. The presence of jaundice and oliguria prior to operative intervention militates against a diagnosis of transfusion reaction. The fact that the patient recovered would cast doubt on cortical necrosis as a cause of the anuria. However, Dieckmann [3] reported a case in which recovery occurred, postulating that necrosis involves only parts of the cortex, with edema and arteriospasm of the remaining cortical area. The presence of jaundice associated with renal failure suggests the possibility of the hepatorenal syndrome. The degree of hepatic failure in this case was insufficient to warrant such a diagnosis.

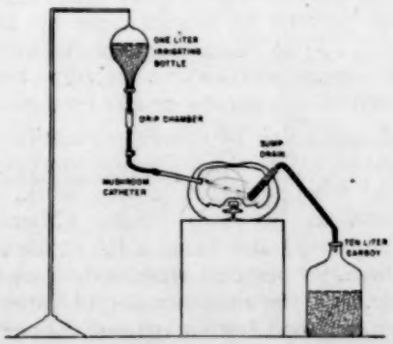


Fig. 2.—Diagram of peritoneal irrigation system.

Our experience with this case demonstrates that peritoneal irrigation is capable of correcting the blood chemical and clinical changes of uremia. It is important to use a fluid that has the proper electrolytic pattern and tonicity. Others [1] have pointed out that failure of this method of treatment in the past has been largely due to difficulty in controlling fluid and electrolyte balance. It will be noted in tables 1 and 2 that an equilibrium was rapidly established between the blood and the irrigation fluid with relation to electrolyte concentrations, and that the blood electrolyte pattern reverted toward normal during therapy.

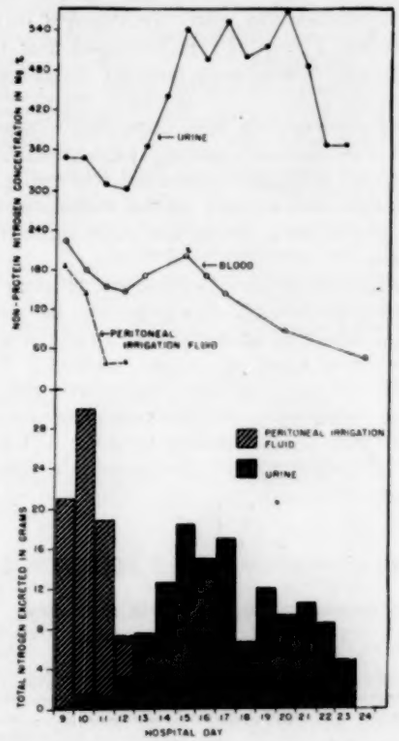


Fig. 3.—Nonprotein nitrogen concentration and nitrogen excretion.

Oliguria had been present for three days before complete renal shutdown occurred. Anuria then persisted for eight days, and the flow of urine began shortly after peritoneal lavage was started. It is impossible to say that the patient would not have survived without peritoneal irrigation, but it is our opinion that this procedure was responsible for her improvement and recovery. The total nitrogen excreted by the kidneys during the irrigation period was 4.07 Gm., while 71.4 Gm. were eliminated by the peritoneum during the same period. For three days after the irrigation had been discontinued the blood nonprotein nitrogen concentration again rose, proving that renal function had not recovered sufficiently to maintain an adequate excretion of nitrogen.

Although peritoneal lavage was begun on the eighth postoperative day and bacteria were found in the lavage fluid on the last day of irrigation, clinical signs of peritonitis did not develop. This was probably because the period of irrigation was brief and antibiotics were used prophylactically.

SUMMARY AND CONCLUSIONS

1. A case of anuria of eight days' duration, which followed a Porro cesarean section, was successfully treated by peritoneal irrigation.

2. It was demonstrated that this is an effective method of eliminating large quantities of nitrogenous products and of restoring blood electrolyte balance and fluid balance to physiologic levels.

3. Dieckmann, W. J.: The Toxemias of Pregnancy, St. Louis, C. V. Mosby Company, 1941, pp. 328-331.

A CANCER PREVENTION AND DETECTION CLINIC

LEONARD B. GOLDMAN, M.D.
Long Island, N. Y.

The purpose of this article is to emphasize the importance of the early detection of cancer and to describe the Cancer Prevention and Detection Clinic of the Queens General Hospital. It is hoped that this paper will encourage other hospitals to establish similar clinics.

The first principle in the control of cancer is the recognition that the persistently high mortality is due first, to patients seeking medical aid when in a relatively advanced stage and second, to the failure of the initial examining physician to recognize early miniature malignant growths.

The public, due to the effective educational campaign of the American Cancer Society, has been taught to seek medical advice at an early date and is now prepared for a preventive type of cancer control. But many members of the medical profession are not equipped or lack the time to give the complete examinations necessary to rule out beginning cancer. With the great extension of knowledge in the oncologic field and the tremendous responsibility associated with early diagnosis, cancer has ceased to be a one man job. Group teamwork is essential.

CANCER PREVENTION AND DETECTION CLINIC

QUEENS GENERAL HOSPITAL JAMAICA, LONG ISLAND

Sponsored by Queens County Cancer Committee

Name ..... Date ..... Clinic No. .....
Address: ..... Age ..... M.S.D.
Reason for coming to Clinic: .....
Occupation: ..... Race: ..... Nationality: ..... Religion: .....
**Family Physician. ..... Address .....
Family History of Cancer: Mother ..... Age .....
Father ..... Age .....
Siblings: ..... Grandparents: .....
Present Medical Status: ..... Weight .....

PAST HISTORY: Childhood Diseases .....
Adult Diseases: .....
Operations: .....

HABITS: Alcohol: ..... Diet: ..... Temperament: .....
Tobacco: ..... **Dental care: .....
(Advise to have dental check-up twice yearly)

SKIN: **Keratoses (To be advised to use lubricants if excessively exposed to sun.)
**Moles: any change in size or color .....
Other: .....

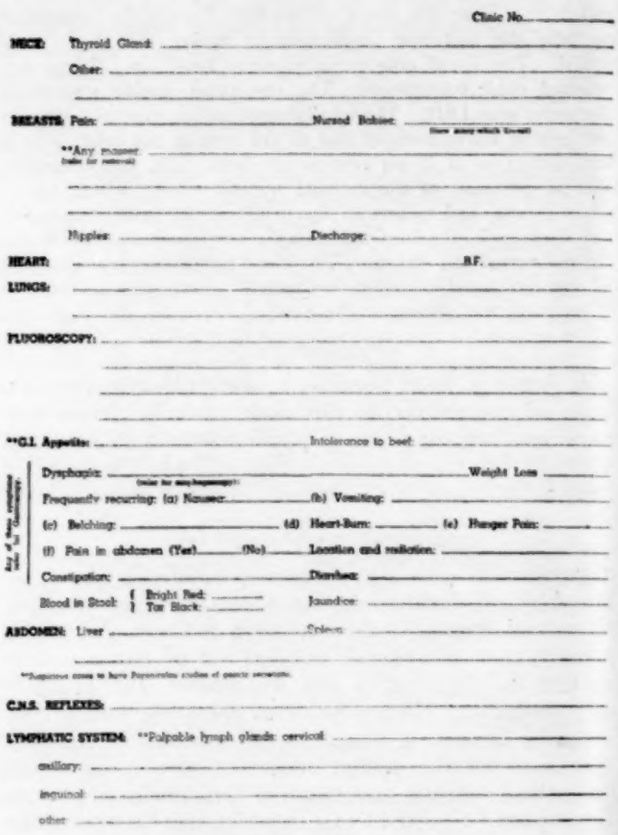
E.N.T. **Persistent hoarseness (refer for endoscopy) **Persistent Cough (refer for bronchoscopy)
Deafness: ..... Feeling of fullness in ear: .....
Persistent headaches: ..... Dizziness: .....
Ears: ..... Nose and sinuses: .....
Lips: ..... Tongue: .....
**Leucoplakia: .....
Buccal cavity: ..... Tonsils: .....
Pharynx: ..... Larynx: .....
(If questionable, refer for direct laryngoscopy)
Nasopharynx: .....
**Teeth injured: ..... **Dentures properly fitting: .....

EYES: Reaction to light ..... Accommodation ..... FOM .....
**Important Fundi: ..... Eyelids: .....

Fig. 1.—Page 1 of the form used in physical examinations at the Queens General Hospital Cancer Prevention and Detention Clinic.

Clinics as they are now organized are concerned chiefly with the obviously ill patient; a person with an early symptom-free carcinoma may be overlooked. Further, hospitals already overburdened with the sick cannot encourage periodic examinations of apparently healthy persons. Yet it is only by such examinations that early carcinomas and precancerous lesions may be detected.

From Queens General Hospital, Department of Hospitals, City of New York.



– 2 –

Clinic No. .....

NECK: Thyroid Gland: .....
Other: .....

BREASTS: Pain: ..... Nursed Babies: .....
(how many which breast)
**Any masses (refer for removal) .....

Nipples: ..... Discharge: .....

HEART: ..... B.P. .....

LUNGS: .....

FLUOROSCOPY: .....

**G.I. Appetite: ..... Intolerance to beef: .....

Dysphagia: ..... Weight Loss .....
(refer for esophagoscopy)
Frequently recurring: (a) Nausea: ..... (b) Vomiting: .....
(c) Belching: ..... (d) Heart-Burn: ..... (e) Hunger Pain: .....
(f) Pain in abdomen (Yes) (No) Location and radiation: .....
Constipation: ..... Diarrhea: .....
Blood in Stool: { Bright Red: ..... Tar Black: ..... } Jaundice: .....

ABDOMEN: Liver ..... Spleen .....

**Suspicious cases to have Roentgenologic studies of gastric carcinoma.

C.N.S. REFLEXES: .....

LYMPHATIC SYSTEM: **Palpable lymph glands: cervical .....
axillary: .....
inguinal: .....
other: .....

Fig. 2.—Page 2 of the same form (fig. 1).

Until more is known about cancer, the most effective step for controlling this disease is the establishment of clinics where apparently healthy persons can be periodically examined. Such clinics would thoroughly study these persons in order (1) to detect early cancer, (2) to help prevent its development by eliminating its precursors, (3) to educate patients to avoid known carcinogenic agents and (4) to expedite the referral of the involved patient for the proper treatment.

The need and value of cancer prevention clinics is further attested to by the following statistics. Elise L'Esperance,[1] who pioneered in this work, examined 4,000 patients in her two clinics (Memorial and Women's Infirmary) and found a 6.5 incidence of cancers. Of these, 98 per cent were early growths which were curable. Of the total number of patients examined, 27 per cent had benign tumors, 30 per cent had other diseases and 36 per cent had no evidence of pathologic conditions. The startling fact was uncovered that cancer was present in 1.5 per cent of patients without any symptoms.

At present these two clinics are so overcrowded that appointments for examinations must be made six months or more in advance, indicating the urgent need for additional clinics.

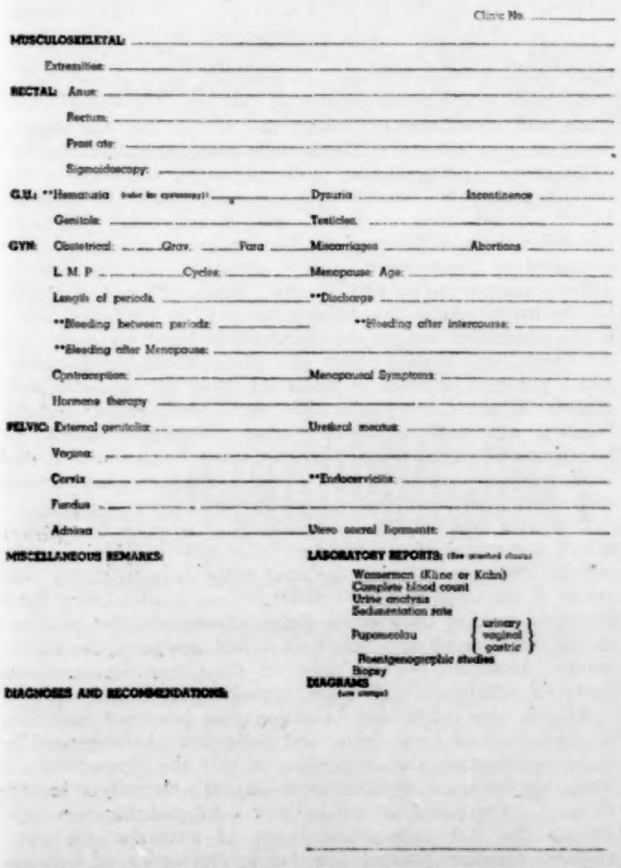
1. L'Esperance, E.: Cancer Prevention Clinics, M. Woman's J. 51: 17-21 (Jan.) 1944.

QUEEN'S GENERAL HOSPITAL CANCER PREVENTION AND DETECTION CLINIC

Organization.—The clinic is under the supervision of the Medical Board of the hospital. The Medical Board has appointed a director of the Clinic (an oncologist) who is responsible for its administration. The staff consists of five specialists: an internist, a surgeon, a gynecologist, an otolaryngologist and a dermatologist. Other personnel consists of two nurses, a laboratory technician, a social worker, a secretary and an orderly.

The clinic is financed by the Queens County Cancer Committee. For admission patients contact the committee, which determines their eligibility and accepts only those entitled to city care. Since the hospital is a municipal one, no charge is made for the examination.

The clinic is held two nights a week from 7 to 9 p. m., and approximately 8 new patients are examined at each session. The social worker (who acts as receptionist), the secretary and the laboratory technician begin their work at 6 p. m. This makes it possible to complete the medical and social histories and to collect the necessary laboratory specimens by 7 o'clock. The patient is then ready for the physical examination. Figures 1, 2 and 3 illustrate pages 1, 2 and 3 of the form used at the clinic.



—3—

Clinic No. _____

MUSCULOSKELETAL: _____

Extremities: _____

RECTAL: Anus: _____

Rectum: _____

Prost ate: _____

Sigmoidoscopy: _____

G.U.: **Hematuria (refer for cystoscopy)? _____ Dysuria _____ Incontinence _____

Genitals: _____ Testicles: _____

GYN: Obstetrical: _____ Gray. _____ Para _____ Miscarriages _____ Abortions _____

L. M. P. _____ Cycles: _____ Menopause: Age: _____

Length of periods _____ **Discharge _____

**Bleeding between periods: _____ **Bleeding after intercourse: _____

**Bleeding after Menopause: _____

Contraception: _____ Menopausal Symptoms: _____

Hormone therapy _____

PELVIC: External genitalia: _____ Urethral meatus: _____

Vagina: _____

Cervix _____ **Endocervicitis: _____

Fundus _____

Adnexa _____ Utero sacral ligaments: _____

MISCELLANEOUS REMARKS:

LABORATORY REPORTS: (Be marked clearly)

Wassermen (Kline or Kahn)
Complete blood count
Urine analysis
Sedimentation rate
Papanicolau { urinary / vaginal / gastric }
Roentgenographic studies
Biopsy

DIAGRAMS (use stamps)

DIAGNOSES AND RECOMMENDATIONS:

Fig. 3.—Page 3 of the same form (fig. 1). On the line for "Sigmoidoscopy" the revised form reads: (adenoma—refer for Ba enema).

Clinic Routine.—Social History: The size of the family, financial status and veteran status are recorded, and the eligibility of the patient is confirmed.

Medical History: Data, which may be taken by the social worker, are acquired on: (1) the family history with reference to incidence of cancer, including site, for at least two generations; (2) the past medical history, including dental, and (3) the present medical status of the patient.

Physical Examination: Thorough investigation of the body includes nasopharyngeal, laryngeal, vaginal and sigmoidoscopic examinations, roentgenogram of the chest and barium fluoroscopy of the esophagus and stomach.

Results of Examination of the First Three Hundred Patients

Benign Tumors (63)			
Angioma	1	Nasal polyp	2
Cervical polyp	3	Nevus	1
Cyst—Breast	1	Nodule—tongue	1
Cyst—testicle	2	Papilloma (gum)	1
Cyst—nasopharynx	3	Sarcoidosis	1
Cystic ovary	1	Sebaceous cyst	3
Fibroma	4	Subcutaneous nodule	1
Fibromatous tag (neck)	1	Uterine fibroid	19
Ganglion	1	Vocal cord nodule	6
Hypertrophied prostate	3	Von Recklinghausen's disease	3
Lipoma	5		
Potentially Precancerous (66)			
Cervicitis	39	Kraurosis vulvae	2
Colitis	2	Larynx—cord thickened	1
Cystic mastitis	1	Leukoplakia (lip)	1
Erosion cervical lip	11	Leukoplakia (tongue)	2
Keratoses	5	Rectal polyps	2
Inflammatory (33)			
Cholecystitis	4	Proctitis	2
Dermatophytosis	1	Prostatism	1
Gallstones	1	Psoriasis	2
Gastritis	1	Sinusitis	7
Hyperemia of cervix	2	Tonsillitis	2
Nasopharyngeal lymphoid tissue	4	Vaginitis	2
Perianal dermatitis	2	Vocal cord reddened	2
Structural (52)			
Anal stricture	1	Paresis—vocal cord	2
Cervical lacerations	3	Perianal tags	1
Cystocele	2	Pregnancy	1
Deviated septum	2	Prolapsed ovary	1
Endometrial hyperplasia	2	Rectal stenosis	1
Enlarged tonsil	1	Retroverted uterus	4
Epigastric hernia	1	Torus palatinus	1
Fistula in ano	1	Umbilical hernia	1
Flat feet	1	Urethral caruncle	7
Hemorrhoids	7	Urethrocele	1
Inguinal hernia	6	Varicose veins	5
Constitutional (38)			
Anemia	3	Emphysema	2
Aneurysm	1	Eosinophilia	1
Arrested pulmonary tuberculosis	1	Hypertension	5
Arrested tuberculosis of hip	1	Hypertensive heart disease	7
Arteriosclerotic heart disease	1	Menopausal symptoms	1
Arthritis	3	Neurasthenia	1
Chronic constipation	1	Peptic ulcer	4
Cirrhosis of liver	1	Psychoneurosis	1
Degenerative neurologic changes	1	Rheumatic heart disease	1
Duodenal ulcer	1	Syphilis	1
Cancers (3)			
Squamous cell carcinoma—lip	1	Basal cell carcinoma—face	2
No Pathologic Condition (45)			

Special Simple Tests: On the first visit special simple tests may be performed if indicated. These include: (1) transillumination of the breast (to differentiate cysts); (2) simple biopsy; (3) aspiration biopsy, and (4) endometrial biopsy.

Special Examinations: If roentgenographic, bronchoscopic, gastroscopic and cystoscopic examinations are symptomatically indicated, the patient is referred to the appropriate clinic.

Laboratory Tests: With the technician present, routine laboratory tests such as a complete blood count, Wassermann, sedimentation rate, urinalysis, vaginal and urethral smears by the Papanicolaou method are done on each patient on the first visit.

Social Service.—The social worker (1) makes the necessary inquiries and investigations with regard to the economic status of the patient; (2) establishes the

proper connection between the clinic and the family physician on the one hand, and between the clinic and the patient's family on the other, and (3) follows up patients who have been recommended for treatment so that the clinical work may be statistically evaluated.

Follow-Up.—The patient returns in one week to be seen in conference with the five specialists. Each physician reports his observations. If there are no positive ones, the patient is given an appointment to return in one year if under the age of 40 or in six months if over 40 or if there is a strong family history of cancer. Should any unusual or persistent symptoms occur, return at any time is recommended. If the results of the examination show a pathologic condition—either local or constitutional—the specialist in that field gives a general verbal report of its nature to the patient and, if necessary, allays the patient's fears. The patient is advised to consult the family physician or is referred to the appropriate hospital clinic. The physician, on request, may obtain a detailed record of the examination.

Results.—During the eight month period that the clinic has been in operation 300 patients have been examined and the results are given in the accompanying table.

SUMMARY

The American Cancer Society by its effective educational campaign has laid the groundwork for a preventive type of cancer control. Due to the complexity and variations of the disease, the teamwork of a group is essential. This conviction led to the establishment of the Queens General Hospital Cancer Prevention and Detection Clinic. The organization of this clinic is described, and the results of the examination of the first 300 patients tabulated.

80-24 Broadway, Jackson Heights.

Clinical Notes, Suggestions and New Instruments

ACUTE UREMIA TREATED BY PERITONEAL IRRIGATION

GEORGE J. STREAN, M.D.
MORTON KORENBERG, M.D.
and
JOSEPH C. PORTNUFF, M.D.
Montreal, Canada

Removal of metabolic products by dialysis through the peritoneal membranes is not a new concept in animal experimentation. The idea that anuria and uremia might be treated in this manner was suggested by Abel and his associates [1] as early as 1914. Application of this principle to human beings was first successfully demonstrated by Fine, Frank and Seligman in 1946.[2] A case is reported in which the method described by these investigators was employed.

REPORT OF CASE

D. C., a married white woman aged 25, was admitted to the Montreal Jewish General Hospital on Nov. 28, 1946, complaining of bleeding gums for two months and purpuric spots on her upper and lower extremities for one week.

She first consulted her physician in September 1946, two months prior to her present admission. At that time she was seven months pregnant. On her first visit in September she was decidedly edematous, the edema involving her hands and face as well as her lower extremities. Urinalysis was reported to be normal, and the blood pressure was within normal limits. The fetal heart could not be heard. She had not felt any fetal movements for one week, and it was suspected that the fetus was dead. She was placed on a salt-free diet and put to bed; in about ten days the edema cleared up. In September her gums had begun to bleed, and on the two days prior to her admission the bleeding assumed serious proportions; purpuric spots appeared then for the first time. Hematologic studies before admission revealed: 4,100,000 red blood cells; hemoglobin 80 per cent; numerous platelets, which did not disintegrate normally; a bleeding time seven and one-half minutes; a clotting time over four and one-half hours; prothrombin time 42 seconds (normal 15 to 19 seconds); Rumpel-Leede test negative, and blood grouping A, Rh negative.

The patient had had three previous deliveries in another hospital: the first, in 1940, resulted in a living child after a long labor with postpartum bleeding—she received a transfusion of her husband's blood and had a febrile reaction but recovered after a stormy convalescence; the second pregnancy, in 1942, terminated in a stillbirth; the third delivery, in 1943, was spontaneous and resulted in a normal full term living infant.

The patient was admitted to this hospital with a tentative diagnosis of thrombasthenic purpura complicating pregnancy. On admission the uterus corresponded in size to a seven months gestation although the patient was at term. No fetal heartbeat could be heard, and it was assumed that the fetus was dead. She was bleeding profusely from her gums, and there were large purpuric areas both on the upper and lower extremities.

She was given a transfusion of 500 cc. of citrated whole blood, and immediately afterward had a chill, her temperature then rising to 101.6 F. The donor's blood was first reported to be group A, Rh negative, and compatible, but when it was rechecked after the reaction had occurred, it was Rh positive. Labor started soon afterward, and eleven hours following admission she was delivered spontaneously of a macerated fetus estimated at about seven months gestation. At the time of delivery catheterization yielded only 2 ounces (59 cc.) of grossly bloody urine. After the delivery, in spite of oxytocics and a firmly contracted uterus, she continued to bleed profusely, and the uterus was packed. She was given whole blood, plasma and 5 per cent dextrose in water intravenously; ascorbic acid, vitamin K and calcium gluconate were administered, and the bleeding was finally controlled after twenty-four hours. A hemogram taken thirty-six hours after admission revealed perfectly normal conditions aside from a moderate anemia, and the coagulogram remained normal thereafter.

Following delivery oliguria developed. The urine was grossly bloody and contained numerous granular casts in addition to the cellular elements. During the next three days treatment consisted of the usual measures directed toward stimulating renal function, such as intravenous fluids, diaphoresis, hot poultices to the loins, ureteral catheterization and lavage of the kidney pelves. However, oliguria persisted, the output decreased and azotemia progressed. (See the accompanying chart.)

At this time peritoneal irrigation was instituted according to the technic of Fine, Frank and Seligman. As suggested by these investigators, the composition of both the intravenous and irrigating fluids was modified as the patient's electrolytic balance dictated. Peritoneal irrigation was continued for ten days. During the last twenty-four hours of irrigation the tubes required constant manipulation due to obstruction of both the inflow and outflow tubes, and on the eleventh day the irrigation had to be discontinued. In spite of the use of penicillin, streptomycin and heparin in the irrigating solutions, both infection (minimal) and plugging of the drainage tubes occurred. Fortunately by this time sufficient renal function had returned to enable adequate clearance of the blood.

Two hours before irrigation was discontinued the patient had a generalized convulsive seizure. She was given calcium gluconate and 50 per cent dextrose intravenously, and phenobarbital sodium was administered, but the convulsions recurred at irregular intervals. Because the thought was entertained

From the Departments of Obstetrics and Gynecology and Medicine, Montreal Jewish General Hospital.

1. Abel, J. J.; Rowntree, L. G., and Turner, B. B.: On the Removal of Diffusible Substances from Circulating Blood of Living Animals by Dialysis. J. Pharmacol. & Exper. Therap. **5**: 275-316, 1914.

2. Frank, H. A.; Seligman, A. M., and Fine, J.: Treatment of Uremia After Acute Renal Failure by Peritoneal irrigation, J. A. M. A. **130**: 703-705 (March 16) 1946. Fine, J.; Frank, H. A., and Seligman, A. M.: The Treatment of Acute Renal Failure by Peritoneal Irrigation, Ann. Surg. **124**: 857-878 (Nov.) 1946.

that these were caused by electrolytic shift between intracellular and extracellular fluids, isotonic sodium chloride solution was administered intravenously with dramatic cessation of the seizures. This form of therapy was discontinued for thirty-six hours, and the seizures recurred. Again they were controlled promptly with the saline solution. Thereafter, specific therapy consisted of the daily administration of sodium chloride.

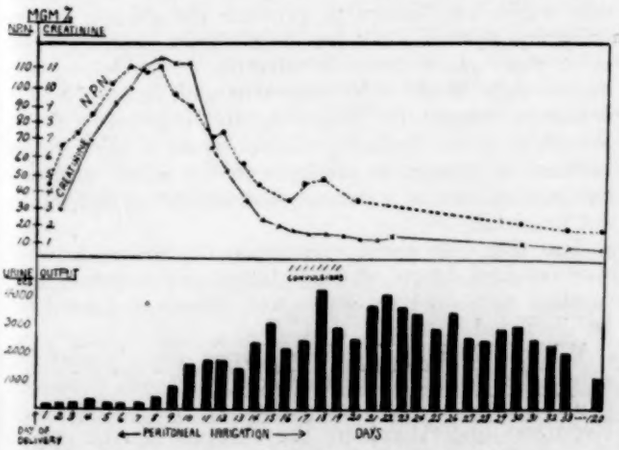
Within twenty-four hours after the institution of peritoneal irrigation, urinary output had doubled. Thereafter the output increased rapidly (see the chart). Abnormal urinary observations disappeared, but the specific gravity of the urine remained low. The patient was discharged thirty-three days after her admission. At that time her blood chemical values were completely normal and her urinary output was approximately 2,400 cc. in twenty-four hours, with a specific gravity of 1.010 to 1.013.

Now, four months after her discharge from hospital, her urinary output is normal in amount, microscopic determinations are within normal limits and the specific gravity varies up to 1.033.

On June 10, 1947, during a laparotomy on this patient for the purpose of removing a large ovarian cyst, we had an opportunity to examine the peritoneal cavity. It was completely free of adhesions.

COMMENT

Lucke has shown recently that cases of acute renal failure due to various causes, such as transfusion reaction, crush syndrome, heat stroke, toxemias of pregnancy, abruptio placentae and blackwater fever, all exhibit essentially the same renal lesion. To this condition he has applied the term "lower nephron nephrosis,"[3] because it is chiefly the lower segment of the nephron which is involved. The lesions vary from focal degeneration to necrosis and disintegration of the epithelium of



The treatment of acute uremia by peritoneal irrigation.

Henle's loop and the distal convoluted tubules. The distribution of this necrotic and degenerative lesion and the degree of pathologic change are variable.

In renal shutdown once the initial shock subsides and the renal edema decreases sufficiently, diuresis begins and polyuria develops—the patient passing an unconcentrated glomerular filtrate. Since the renal damage is primarily tubular, some time must elapse before regeneration of damaged epithelium and before adequate or significant concentration of urine can occur.

In the case reported here, diuresis and blood clearance were established soon after the initiation of peritoneal irrigation. It took several months, however, before the urine concentrated to 1.030 and before it was considered safe to take the patient off a regimen of daily salt supplements.

Peritoneal irrigation in the treatment of renal failure can obviously be applied only when the pathologic changes are reversible. With this method it is possible to control the azotemia temporarily, and if the renal damage is not irreparable adequate function of the kidney will be reestablished in ten days to two weeks.

3. Lucke, B.: Lower Nephron Nephrosis, Mil. Surgeon **99**: 371-396 (Nov.) 1946.

NOTE.—Since this report was written, a case of acute renal failure was successfully treated and reported by Goodyear and Beard.[4]

SUMMARY

1. The successful use of peritoneal irrigation in the treatment of a patient with acute renal failure is reported.
2. The treatment was instituted on the sixth day of oliguria and was maintained continuously for over ten days.
3. In spite of the use of penicillin, streptomycin and heparin in the irrigating solutions, both infection and plugging of the indwelling tubes occurred.
4. Generalized convulsive seizures were promptly controlled by the intravenous use of isotonic sodium chloride solution.
5. Four months after discharge, the results of urinalysis are within normal limits.

4. Goodyear, W. E., and Beard, D. E.: The Successful Treatment of Acute Renal Failure by Peritoneal Irrigation, J. A. M. A. **133**: 1208-1210 (April 19) 1947.

Council on Foods and Nutrition

The Council on Foods and Nutrition has authorized publication of the following article. JAMES R. WILSON, *Secretary.*

IMBALANCE AND DIETARY INTERRELATIONSHIPS IN NUTRITION

C. A. ELVEHJEM, Ph.D.
Madison, Wis.
and
WILLARD H. KREHL, Ph.D.
New Haven, Conn.

One might define, as the optimum goal of the nutritional biochemist, the development of a diet which supplies all nutrients in respect to kind and amount and in proper state of combination for all physiologic processes from conception to the death of the organism. In addition, the adequate diet must contain a minimum of injurious (toxic) factors. Such a diet would indeed be balanced, and any important deviation downward from the proper amount of a nutrient would lead to one well known kind of imbalance, reflected as deficiency disease. Since much has been written concerning this kind of imbalance, it will be considered here only incidentally.

It is primarily when and where a variety and abundance of foodstuffs are available that one can apply the criteria of a balanced diet as far as knowledge permits. Any situation, whether due to economic, political, geographic or climatic reasons, which limits the food supply, both as to choice and as to amount, obviously allows a restricted application of the concept of a "balanced diet." Under such conditions the most compelling desire of the organism is for calories. Whether the source of calories supplies the "essential factors" is largely a matter of happenstance. It is perhaps a fortuitous physiologic fact that the requirement for some factors, such as vitamin B_1, is somewhat reduced under conditions of caloric restriction. When, however, the sources of calories are limited primarily to a single food material such as polished rice or corn, we see "nutritional imbalance" at its worst, with large numbers of people afflicted with beriberi and pellagra respectively.

It is pertinent to consider for a moment the basis on which our present criteria for a balanced diet were arrived at. Most of the fundamental knowledge concerning the requirements for the various known (and as yet some unknown factors) has been obtained through numerous and laborious studies with experimental ani-

mals. In addition the clinician has made invaluable contributions by translating these experimental observations into practical studies with human patients. As data accumulated from animal feeding experiments it became obvious that the quality of a ration could not be accurately ascertained on the basis of its chemical composition alone. It became further evident that requirements for specific factors changed with alterations in diet composition and that many needed factors existed which were beyond the scope of available analytical chemical methods. The employment of highly purified rations gave perhaps the greatest impetus to the search for an elucidation of unknown vitamins, until now it is proudly stated (although always with some reservation) that at least the qualitative nutritional requirements of certain species are known. Several important lessons can be gleaned from the accumulated experimental data and are worth enumerating: (*a*) the effectiveness of nutrition in maintaining optimum health depends on the inclusion in the diet of the least known as well as the best known nutrient, (*b*) it is desirable to employ numerous species of animals in nutritional research, since nutritional requirements vary both in kind and in amount from species to species and (*c*) the application of accumulated experience to problems of human nutrition will certainly be on a firmer basis when the nutritional requirements of experimental animals are known.

One of the important and practical achievements in nutrition is the development of the tables of recommended dietary allowances [1] prepared by the Food and Nutrition Board of the National Research Council. These tables were developed largely by the application of "cooperant reason" to the numerous published nutritional observations on animals and human beings. It will be noted that the board uses the term recommended allowances rather than standards to "avoid any implication of finality." It is difficult to make an adequate evaluation of the service that this board has rendered, since in addition to establishing certain "yardsticks" of good nutrition it has intelligently focused attention on the ever important problem of "adequate nutrition for all." That such attention is important is sadly apparent in the continued evidence for "inadequate diets and nutritional deficiencies" in the United States.[2]

Although "synthetic diets" have proved invaluable in determining what and about how much vitamin, amino acid or fatty acid is required by various animals, it is becoming increasingly apparent that the requirements for these specific materials both qualitatively and quantitatively can be definitely altered when fed as components of a foodstuff. That man can derive his nutrition, at least for a short time, on a synthetic diet is known; [3] however, for the most part man's diet is composed of natural materials, and for this reason a new approach to nutritional research awaits further investigation, namely the study of the effect of these various materials and the kind and percentage of dietary components on the requirement of those factors which are required for the most part in relatively small amounts.

One potentially important aspect of the matter of altered vitamin requirement induced by natural materials is indicated by Woolley's [4] studies on certain relationships of chemical structure to biologic activity. It has been shown that certain chemical substances which have a structural relationship to various required biologic compounds may cause, when administered, specific signs of deficiency diseases which can be "reversed by the metabolites in question when given in adequate amounts." Extensive evidence for the natural existence for such "inhibitors" is not available, but this may be due primarily to lack of knowledge and experimental technics for demonstrating their existence. That such materials can exist under certain specified conditions is demonstrated by the vitamin K deficiency caused by dicumarin when spoiled sweet clover hay is eaten by cattle. It must be emphasized that the activity of these "anti compounds" is presumably due to the fact that they closely resemble the required biologic compound in chemical structure. Whether all "inhibitor" materials operate via the mechanism postulated by Woolley remains to be proved.

Another general factor which may result in imbalance in nutrition is the presence of natural toxicants in food. Materials in food, whether naturally present or as the result of processing, such as fluorine, selenium, lead, arsenic and copper, appear high on the list of intoxicants which may seriously impair the physiology of the organism when they are ingested at too high a level. The presence of the toxic agent gossypol in certain cottonseed meals must be considered when this feed is employed in animal rations. Under the same category must be placed certain wheat glutens and wheat products which are known to produce the disease known as canine hysteria.[5] It has been shown recently, however, that wheat flour is effective in producing this disease as a result of its treatment with agene (NCl_3), a common agent for bleaching and improving flour.[6] Whether agene induces canine hysteria directly or because of changes it produces in the wheat gluten is not certain; nor is it certain that additional factors are not involved.

The fact that the consumption of certain legumes such as fava beans, djenkol beans and lathyrus peas produce untoward results is well known and need not be discussed further.

While the nutritional imbalance and biochemical defects due to such intoxicants can be readily produced, explanations of their mechanisms are not well known. Even less understood are the changes in requirement and production of deficiencies and altered physiology which may result from seemingly innocuous modifications of such factors as the type of carbohydrate in the ration, balance of inorganic elements, amount and kind of protein or amino acid(s), qualitative and quantitative changes of fat and fatty acids in the diets, and general vitamin level. In addition one must consider the interrelationships known to exist between nutrients.

The foregoing factors are known to induce "imbalances" in nutrition which are considerably more difficult to explain than the mere omission of a specific required substance, and these somewhat subtle changes will be considered at some length.

MINERAL IMBALANCE

Because of the importance of calcium and phosphorus in nutrition, some of the significant factors concerning their availability as affected by diet are worthy of

1. Recommended Dietary Allowances (Revised 1945), National Research Council Reprint and Circular Series number 122, August 1945.
2. Inadequate Diets and Nutritional Deficiencies in the United States, Bull. National Research Council 100, November 1943.
3. Olmstead, W. H.; Hartford, C. G., and Hampton, S. F.: Use of a Synthetic Diet for Food Allergy and Typhoid, Arch. Int. Med. **73**: 341 (April) 1944.
4. Woolley, D. W.: Some New Aspects of the Relationship of Chemical Structures to Biological Activity, Science **100**: 579, 1944.
5. Wagner, J. R., and Elvehjem, C. A.: A Study of Canine Hysteria Produced by Feeding Certain Baked Dog Foods and Wheat Glutin Flour, J. Nutrition **28**: 431, 1944. Melnick, D., and Cowgill, G. R.: The Toxicity of High-Gliadin Diets: Studies on the Dog and on the Rat, ibid. **14**: 401, 1937.
6. Mellanby, Edward: Diet and Canine Hysteria: Experimental Production, Brit. M. J. **2**: 885 (Dec. 14) 1946.

consideration. Of the important factors which favorably influence the absorption and utilization of calcium, magnesium and phosphorus, an acid reaction in the intestine ranks high in importance.

That vitamin D is important in calcium utilization may be explained at least in part by the little understood fact that it tends to favor the production of an acid p_H in the intestine. In this connection another recently elaborated role of vitamin D is the observation [7] that it has a favorable influence on the utilization of the phosphorus of phytin, the availability of which has been the subject of considerable controversy.

Moderate quantities of dietary fat may also play a favorable role in promoting an acid intestinal reaction. Another dietary component which promotes such a reaction is lactose, which probably mediates its influence through the establishment of an aciduric bacterial flora. Is it not interesting that when the need for calcium and phosphorus assimilation is greatest (i. e. the growing child), the major, normal dietary component is milk, which is not only a good source of these minerals but contains lactose and is high in fat? Dextrin and corn starch also have an effect similar to but less than lactose.

Another important consideration concerning the possible imbalance of diets due to minerals is the significance of the calcium-phosphorus ratio. From the considerable work that has been done on this subject, it may be concluded that both calcium and phosphorus may be lost from the body and excreted in the event of any decided abnormality of the calcium : phosphorus ratio. There is considerable variation in opinion as to just what the optimum ratio should be, and it certainly varies with the nutritive requirement at different ages (i. e.) from 1.5 : 1 to 2 : 1 for infants, to about 1 : 1 for older children.[8] Milk which may be considered a sound basis for good nutrition has a Ca : P ratio of about 1.2 : 1.

Other factors which may adversely affect calcium utilization are excessive amounts of magnesium in the diet and the well known calcium combining action of the oxalate in certain foods.

In considering the other minerals which may interfere with phosphorus utilization one could conclude that certain cations such as iron and manganese for practical examples, which form insoluble phosphate compounds in the intestinal tract, may, if fed in sufficient concentration, lead to impaired phosphorus utilization. Likewise excesses of phosphorus in the diet can interfere with the utilization of these cations. McCance [9] for instance found that both phosphate and phytin interfered perceptibly with iron absorption, although the effect of phosphate was not as great as that of phytate.

In relation to calcium utilization, it was shown [10] that diets high in protein notably favored the absorption of calcium and also resulted in increased magnesium absorption. This observation might have significance in locations where protein comprises a major portion of the diet, and calcium intake is limited.

The effect of a general mineral imbalance is well illustrated in the recent observation [11] that a partial substitution of casein with whey protein in a formula simulating human milk resulted in a retardation of rat growth. This result was not in accord with the well known superior biologic value of lactalbumin (in whey) over casein. This discrepancy was made clear however when, by dialysis of the whey, its minerals were removed and more favorable growth ensued. When the minerals which had been dialyzed from the whey were ashed and reintroduced in the ration, poor growth again resulted.

INFLUENCE OF FATS

It has been indicated that dietary fat may assist in calcium and phosphorus utilization by favoring a more acid reaction in the intestinal tract. In addition it is increasingly apparent that fats may have other important roles in nutrition beyond the fact that they assist in the absorption of and act as carriers for the fat soluble vitamins. The human body can utilize 93 to 98 per cent of most common fats and it can tolerate quantities of fat equivalent to at least a third of the average daily energy consumption.[12] No definite opinion has been crystallized as to the optimum level of dietary fat; suggestions have been made favoring levels just sufficient to supply the essential fatty acids up to an amount equivalent to 25 or 30 per cent of the daily intake. Even greater divergence of opinion is evident concerning the type of fat which should be employed in the diet. The numerous controversial observations [13] regarding the nutritional superiority of butter fat over certain vegetable fats are sufficient to illustrate this point. The recent report [14] that vaccenic acid (C18, Δ 11, 12 elaidinic acid), present in summer butter, has growth promoting properties offers the most concrete evidence to date in support of butterfat superiority for rat growth. It remains to be seen whether this observation will be confirmed or lead to further controversy.

Boutwell and his associates [15] in extensive experiments have consistently observed that when lactose is used as the sole carbohydrate, or when the general level of B complex vitamins is employed at a comparatively low level, butterfat is superior to corn oil in effecting rat growth. Even greater growth differences were evident when younger rats (less than 21 days old) were used at the start of the experiment.[16] Certainly, some of the observed differences between butterfat and corn oil may be explained on the different effects of these respective fats on the intestinal flora.

To present the other side of this controversy, Deuel and his associates [17] observed that "if fat per se is required for fertility and pregnancy, its requirement may be equally satisfied by the various vegetable fats as by butter. From the standpoint of lactation, as judged by the survival of the litter and the weight of the young

7. Boutwell, R. K.; Geyer, R. P.; Halverson, A. W., and Hart, E. B.: The Availability of Wheat Bran Phosphorus for the Rat, J. Biol. Chem. **162**: 151, 1946.
8. Stearns, Genevieve: The Significance of the Retention Ratio of Calcium: Phosphorus in Infants and in Children, Am. J. Dis. Child. **42**: 749 (Oct.) 1931.
9. McCance, R. A.; Edgecombe, C. N., and Widdowson, E. M.: Phytic Acid and Iron Absorption, Lancet **2**: 126 (July 31) 1943.
10. McCance, R. W.; Widdowson, E. M., and Lehmann, H.: The Effect of Protein Intake on the Absorption of Calcium and Magnesium, Biochem. J. **36**: 696, 1942.
11. Daniel, F. K., and Harvey, E. H.: Some Observations on the Nutritional Value of Dialyzed Whey Solids, J. Nutrition **33**: 429, 1947.
12. Longworthy, C. A.: The Digestibility of Fats, J. Indust. & Engin. Chem. **15**: 276, 1923.
13. Deuel, H. J., Jr.; Movitt, E.; Hallman, L. F., and Mattson, F.: Growth Rate and Efficiency of Conversion of Various Diets to Tissue, J. Nutrition **27**: 107, 1944. Boutwell, Geyer, Elvehjem and Hart.[15]
14. Boer, J.; Jansen, B. C. P., and Kentie, A.: On the Growth Promoting Factor for Rats Present in Summer Butter, J. Nutrition **33**: 339, 1947.
15. Boutwell, R. K.; Geyer, R. P.; Elvehjem, C. A., and Hart, E. B.: Further Studies on the Comparative Value of Butter Fat, Vegetable Oils and Oleomargarines, J. Nutrition **26**: 601, 1943.
16. Boutwell, R. K.; Geyer, R. P.; Elvehjem, C. A., and Hart, E. B.: Further Studies on the Growth Promoting Value of Butter Fat, J. Dairy Sc. **26**: 429, 1943.
17. Deuel, H. J., Jr.; Movitt, E., and Hallman, L. F.: The Negative Effect of Different Fats on Fertility and Lactation in the Rat, J. Nutrition **27**: 509, 1944.

at weaning time, the different fats were also equally effective." Interesting as this problem is, its final solution can be reached only through further research.

Perhaps more pertinent to the topic under consideration is the relationship between dietary fats and other nutrients. For example, the presence of rancid fat in the diet produces some interesting effects which deserve mention. From the accumulated literature on this subject it appears that there is significant destruction of vitamin A as a result of rancid dietary fat. This destruction seems to be associated with intense peroxide formation, although it has been concluded [18] that intermediates of fatty acid peroxidation are the active agents involved and not the peroxides themselves. It has been shown too [19] that oxidative changes which accompany the development of rancidity in unsaturated fats destroy vitamin E.

That high fat diets exhibit a striking effect on the requirement of certain members of the B complex is well known. Mannering [20] has shown for example that fat at a level of 25 and 40 per cent of the diet materially increased the riboflavin requirement of the rat. This effect may be mediated through the impairment of riboflavin synthesis by intestinal bacteria as an unfavorable result of the high fat level. It is interesting to note in this connection that milk, a high fat food, is one of the richest natural sources of riboflavin.

The thiamine sparing action of fat has been adequately reviewed,[21] but in view of recent experiments [22] this sparing action must be considered with somewhat greater reservation, since it can be shown that the young, growing rat develops the typical symptoms of polyneuritis actually more clearly on B_1 deficient high fat diets than on isocaloric carbohydrate diets. This observation is certainly more consistent with the increasing evidence in support of the tricarboxylic acid cycle as a pathway for the oxidation of fatty acids as well as carbohydrate. This being the case, thiamine should be as important in fat metabolism as in carbohydrate metabolism.

Evidence is also available [22] which indicates that the growth of rats on pantothenic acid deficient diets can be greatly improved by the isocaloric replacement of the carbohydrate of the diet with fat. In addition, the difference obtained is greater when the protein level of the diet is high than when it s low.

On the other hand, the severe skin symptoms of egg white induced biotin deficiency can be produced much more rapidly when fat replaces the carbohydrate.[22] This cannot be considered as a direct adverse effect of fat because in this case the skin symptom evidences of the biotin deficiency appear more quickly, probably because the rat's growth rate is better on the high fat diet and hence the stores of the vitamin are exhausted sooner.

The recent demonstration [23] that a nicotinic acid deficiency in the rat is more readily produced on a low fat diet and that 30 per cent of fat in the diet tends to counteract this deficiency is another example of the vitamin sparing action of fat.

It was observed early in the work on vitamin B_6 that the acrodynia symptoms associated with this deficiency were more apparent when fat was omitted from the diet. This observation was more particularly related to the presence of certain fatty acids in the diet, especially linoleic acid.

The relationship between high fat diets and the requirement of choline and labile methyl groups is indicated by the fact that a simultaneous deficiency of these two factors in high fat diets results in more rapid fatty infiltration and necrosis of the liver, with frequent findings of hemorrhagic degeneration of the kidney.

It is understandable that the numerous favorable effects of high fat diets should be interpreted from the point of view of the known role of certain of the B complex vitamins involved in carbohydrate metabolism, but to assume that these vitamins are not as important in the metabolism of fat may be merely a reflection of our ignorance of the biochemical transformations involved in the ultimate breakdown of fat.

A fresh point of view concerning the value of fat in the diet is based on the finding of Forbes and his associates [24] that, on a mixed diet containing fat, animals have extra calories for work, growth or storage. These extra calories are not available when fat is omitted from the diet even though an isocaloric mixture of carbohydrate and protein is supplied. Fat apparently confers efficiency of utilization of food energy on both growing and mature rats. The observed retention of nitrogen as tissue protein was over 10 per cent greater on a 30 per cent than on a 2 per cent fat diet. In other words, the energy cost of metabolizing diets providing constant protein intake decreased with increasing ratio of fat to carbohydrate. Deuel [25] has recently concluded that the favorable effect of diets containing fat is due to several factors: (*a*) the greater intake in terms of energy values of diets containing fat and (*b*) greater efficiency of utilization.

The value of dietary fat in the utilization of certain carbohydrates is indicated from the work of Schantz and his associates,[26] who showed that the 3 or 4 per cent of fat naturally present in milk is necessary if the animal is to make complete utilization of the lactose or, more specifically, of galactose. Geyer and his associates,[27] in more recent experiments on this subject, conclude that (*a*) fat in some way influences galactose utilization, (*b*) galactose utilization is appreciably decreased as the percentage in the diet is increased and (*c*) added glucose does not lower galactose excretion as does fat.

Since approximately 50 per cent of the calories of whole milk are derived from fat, it is obvious that the use of milk as the sole source of calories will not result in physiologic embarrassment due to the failure of galactose utilization (except in certain rare cases). Nature would indeed be cruel to permit anything but this condition to exist, since infants in particular obtain nearly all their calories from milk.

18. Sumner, R. J.: The Relation Between Carotene Oxidation and the Enzymic Peroxidation of Unsaturated Fats, J. Biol. Chem. **146:** 215, 1942.
19. Mattill, H. A.: The Oxidative Destruction of Vitamins A and E, J. A. M. A. **89:** 1505 (Oct. 29) 1927.
20. Mannering, G. J.; Orsini, D., and Elvehjem, C. A.: Effect of the Composition of Diet on the Riboflavin Requirement of the Rat, J. Nutrition **28:** 141, 1944.
21. Cowgill, G. R.: The Vitamins, Chicago, American Medical Association, 1939, pp. 159-178.
22. Krehl, W. A., and Carvalho, A.: Unpublished data.
23. Salmon, W. D.: Some Physiological Relationships of Protein, Fat, Choline, Methionine, Cystine, Nicotinic Acid and Tryptophan, J. Nutrition **33:** 155, 1947.
24. Forbes, E. B.; Swift, R. W.; Elliott, R. F., and James, W. H.: Relation of Fat to Economy of Food Utilization: I. By the Growing Albino Rat, J. Nutrition **31:** 203, 1946.
25. Deuel, H. J., Jr.; Meserve, E. R.; Straub, E.; Hendrick, C., and Scheer, B. T.: The Effect of Fat Level of the Diet on General Nutrition, J. Nutrition **33:** 569, 1947.
26. Schantz, E. J.; Elvehjem, C. A., and Hart, E. B.: The Relation of Fat to the Utilization of Lactose in Milk, J. Biol. Chem. **122:** 381, 1942.
27. Geyer, R. P.; Boutwell, R. K.; Elvehjem, C. A., and Hart, E. B.: The Effect of Fat on the Utilization of Galactose by the Albino Rat, J. Biol. Chem. **162:** 251, 1946.

Handler,[28] writing on this subject, considers that there is a biochemical defect which underlies the failure of lactose (galactose) utilization and indicates that this is due to an impairment of normal glucose metabolism, although no definite statement is given as to the nature of this disturbance.

One must consider that at high levels of galactose ingestion the ability of the organism to convert galactose to glucose is rapidly exceeded, in which event the excess is excreted. The only "biochemical defect" then according to this interpretation would be one of overdosage.

Whether or not fat or any of the intermediates of fat metabolism exert a biochemical note in the reactions involved in the conversion of galactose to glucose to glycogen can be ascertained only after additional research.

CARBOHYDRATE: RELATIONSHIPS TO VITAMIN REQUIREMENTS

As a readily available and most economical source of energy, carbohydrate is of primary importance in nutrition. About 50 or 60 per cent of the calories of the "average diet" are derived from carbohydrate, although wide deviations from this amount are possible, witness the low carbohydrate intake of the Eskimo and the reduced intake of the person with diabetes. Using milk as a nutritional standard again, it can be seen that in this food carbohydrate comprises only about 30 per cent of the total calories. McCollum[29] states that "the minimum amount of carbohydrate necessary for maintenance of life and the prevention of ketosis is from 10 to 15 per cent of the total energy requirement." Species variation may modify these figures to some extent.

Aside from observations, such as the different absorption rates of hexose sugars,[30] the general unavailability of pentoses and cellulose for man, and the aforementioned findings concerning galactose and lactose, very little information is available concerning the comparative nutritional qualities of the several types of carbohydrate which man can utilize.

It is indeed a fortuitous economic fact that ruminants, such as the cow, have a type of digestive system which permits utilization of a substantial portion of dietary cellulose. This fact is a result of the favorable action of cellulose digesting organisms in the rumen which are capable of breaking down cellulose to available hexoses.

This particular mechanism of bacterial action is not present in the human digestive tract, but another type of bacterial synthesis can undoubtedly act in a beneficial manner for man. The extent to which a favorable bacterial synthetic mechanism can assist man in supplying certain factors may depend very importantly on the type of carbohydrate employed in the diet, if the experiments with animals can serve as a guide. Fridericia[31] was the first to observe that animals can grow satisfactorily on certain diets deficient in the "B vitamin." This condition, known as refection, can be readily produced by giving diets which contain raw potato starch as the carbohydrate. Cooked potato starch on the other hand does not cause refection. These observations have been confirmed by numerous workers, and extended applications of the phenomenon have been made.

The fact that the growth and appearance of experimental animals on diets deficient in certain members of the B complex vitamins can vary considerably, depending on the type of carbohydrate used, indicates that there are decided differences in the nutritional value of carbohydrates not reflected by their similar energy values.

Results common to all the experiments that will be cited can be summarized by saying that, regardless of which vitamin was investigated, its requirement was reduced in all cases when relatively insoluble carbohydrates, such as dextrin or starch, were used in the diet. Lactose has also given similar results in many cases, although not so accentuated, and surprisingly enough in some cases diets containing glucose have favorably influenced the vitamin requirement. In all cases when sucrose was the dietary carbohydrate of choice, the vitamin requirement was highest. One might place the carbohydrates in the following decreasing order in their favorable effect on vitamin requirement: dextrin, starch, lactose, glucose, sucrose, although this varies with different vitamins.

It seems reasonable to the proponents of the mechanism of intestinal synthesis that certain carbohydrates, owing to their slower breakdown and absorption from the intestinal tract, provide a suitable substrate for the development of a type of bacterial flora which may contribute significant quantities of vitamins to the host. Mannering[20] states for example that, "when the riboflavin intake is suboptimal, rats receiving a diet rich in dextrin or corn starch show greater weight increases than do animals receiving diets characterized by their content of sucrose, cellulose, lactose or lard. Lactose is not entirely without effect in this respect."

In a recent study Krehl and Carvalho[22] showed that the use of dextrin in pantothenic acid deficient diets greatly improved rat growth. This favorable synthesis of pantothenic acid could be correlated with higher levels of this vitamin in cecal contents, liver and muscle tissue and could be further related to much less hypertrophy and hemorrhage of the adrenal and better protection against involution of the thymus in comparison with deficient animals which received sucrose as the carbohydrate. Likewise the onset of symptoms of egg white induced biotin deficiency were delayed when dextrin was used as the carbohydrate instead of sucrose, despite the fact that the dextrin fed rats grew better, which would tend to increase the demand for biotin.

Good evidence is available[32] to support the idea that pyridoxine is synthesized by intestinal bacteria when the sucrose of the diet is replaced by dextrin. That this mechanism may be available to man may in part explain the limited evidence for pyridoxine deficiency in this species.

In a study on the effect of diet on the response of chicks to folic acid, Luckey and his associates[33] report that the response to folic acid was least with high fat diets or with diets containing glucose, sucrose or starch as the sole carbohydrate. The best response to the

28. Handler, P.: The Biochemical Defect Underlying the Nutritional Failure of Young Rats on Diets Containing Excessive Quantities of Lactose or Galactose, J. Nutrition **33**: 221, 1947.

29. McCollum, E. V.; Orent-Keiles, E., and Day, H. G.: The Newer Knowledge of Nutrition, Macmillan Company, New York, 1939.

30. Cori, C. F., and Cori, G. T.: The Influence of Insulin on the Utilization of Glucose, Fructose and Dihydroxyacetone, J. Biol. Chem. **76**: 755, 1928.

31. Fridericia, L. S.: Refection, a Transmissible Change in the Intestinal Content, Enabling Rats to Grow and Thrive Without B Vitamin in Food, Skandinav. arch. f. physiol. **49**: 129, 1926.

32. Sarma, P. S.; Snell, E. E., and Elvehjem, C. A.: The Vitamin B6 Group: VIII. Biological Assay of Pyridoxal, Pyridoxamine and Pyridoxine, J. Biol. Chem. **165**: 55, 1946.

33. Luckey, T. D.; Moore, P. R.; Elvehjem, C. A., and Hart, E. B.: The Effect of Diet on the Response of Chicks to Folic Acid, Proc. Soc. Exper. Biol. & Med. **62**: 307, 1946.

vitamin was obtained with high protein, low fat diets or with diets containing corn meal or dextrin. It is difficult to ascertain why in this case differences between corn starch and corn meal and dextrin were observed. A possible explanation might be due to the rather undesirable physical aspects of diets high in corn starch. It seems that several interrelating factors may be involved in influencing the effect of diet on the folic acid requirement of the chick.

Such a complexity between diet composition and vitamin requirement is well demonstrated in the interesting series of experiments [34] which have established certain conditions under which a nicotinic acid deficiency can be induced in the rat, an animal which had normally been considered not to require a dietary source of this vitamin.

It was first shown that if 40 parts of the sucrose of a "synthetic ration" are replaced with corn grits, the nicotinic acid requirement of the growing dog is increased from about 0.3 mg. per kilogram of body weight to about 1 mg., despite the fact that corn grits contribute some nicotinic acid to the diet. When this study was extended to the rat by replacing 40 per cent of a synthetic diet with corn or corn grits, which reduced the casein level of the corn supplemented diet to 9 per cent, a retardation of growth was demonstrated. This growth depression could be completely counteracted by the further addition of nicotinic acid to the diet, again despite the fact that in these experiments the corn and corn grits contributed 0.8 and 0.4 mg. of nicotinic acid per hundred grams of diet, respectively.

It was recognized in this work that rat growth on a 9 per cent casein synthetic diet deficient in nicotinic acid is not optimum and generally is improved by the addition to the diet of amounts of nicotinic acid up to 1 mg. per hundred grams. If by this addition of nicotinic acid growth is improved, why does not a similar amount of nicotinic acid as represented in corn grits, for example, likewise improve growth, particularly when one considers that the total protein and type of carbohydrate contributed by the corn should have some supplementary action to the diet? Actually a growth depression can be observed.

Although the foregoing observations have been confirmed in other laboratories, a criticism [35] has been made of these findings on the basis that the growth of rats is poor on a 9 per cent casein diet with or without the inclusion of corn and therefore corn has no "specific deleterious effect." In fact, in this particular experiment the growth results obtained on the basal 9 per cent casein diet were so poor (less than 3 Gm. per week for eight weeks) as to obviate a very fair comparison. It is interesting to note though that in these experiments the addition of crystalline nicotinic acid also evoked a better growth response than did corn alone, which again is difficult to explain since in some of these cases at least nearly as much nicotinic acid must have been contained in the added corn as was added in crystalline form. Whether or not corn has a "specific deleterious action" quite largely depends on extenuating circumstances. If, under defined conditions, one compares corn with certain other cereal grains such as polished rice, which closely resembles corn in its nicotinic acid and tryptophan content (to be discussed) one finds corn decidedly inferior, using the growth of young rats as a criterion. Further evidence for the observed action of corn rations is indicated by the demonstration that corn contains a pellagragenic agent which can be extracted and prepared in fairly high concentration. This "pellagragenic material" from corn when fed to mice produced a manifest growth depression. Interestingly, corn alone does not have this effect in mice.[36]

PROTEINS AND AMINO ACIDS IN NUTRITIONAL IMBALANCE

In studying the effect of corn on the growth of rats it was soon learned that, when the casein level of the diet was increased, good growth resulted whether or not corn was used in the diet. This seemed to indicate that in conjunction with the nicotinic acid deficiency a concomitant amino acid deficiency might be involved. Since corn is notably deficient in tryptophan, this amino acid was added to the corn supplemented ration and, surprisingly enough, proved to be as effective as nicotinic acid in promoting growth. This fact indicated then an interrelationship between a vitamin, nicotinic acid, and an amino acid, tryptophan. As already stated, rather specific conditions are needed for the production of this nicotinic acid deficiency in the rat. When, for example, dextrin, corn starch itself or even glucose is used as the dietary carbohydrate in place of sucrose there is little growth inhibition from corn. A low general level of vitamins accentuated the action of corn rations in retarding rat growth. The favorable effect of a carbohydrate such as dextrin has been interpreted as being due to the establishment of an intestinal flora which augments nicotinic acid synthesis. Since, as has been mentioned, high levels of dietary fat tend to reduce the nicotinic acid requirement of the rat,[23] the inclusion of 30 per cent of fat in the diet largely but not entirely eliminates the growth retardation induced by corn.[35] Whether this effect can be likewise observed in man, whose requirement for nicotinic acid is probably much higher than that of the rat, must be questioned, particularly in view of the fact that pellagra producing diets in the South generally contain liberal amounts of fat from "sowbelly."

A recent extension of the effect of corn rations on the nicotinic acid requirement has been made with the pig [37] in which it was observed that the use of corn as a major part of the ration resulted in a nicotinic acid deficiency even though the percentage of dietary protein was relatively high. "The supplementation of the low protein corn rations with tryptophan produced animals whose external appearance was normal in every respect." This supplementation also resulted in increased efficiency of food utilization.

Perhaps more interesting than the effect of corn supplemented rations on the dietary nicotinic acid-tryptophan requirement of the rat are the observations [38] that a completely analogous syndrome can be produced by adding tryptophan free proteins or acid hydrolysates of protein (tryptophan free) to basal rations which contain 9 per cent casein and no nicotinic acid. For example, a protein such as zein, the chief protein from

34. Krehl, Sarma, Teply and Elvehjem.[33] Krehl, Sarma and Elvehjem.[35] Krehl, de la Huerga and Elvehjem.[44] Krehl, Henderson, de la Huerga and Elvehjem.[23]

35. Salmon, W. D.: Relation of Corn Products to the Requirement of the Rat for Nicotinic Acid, J. Nutrition **33**: 169, 1947.

36. Woolley, D. W.: The Occurrence of a Pellagragenic Agent in Corn, J. Biol. Chem. **163**: 773, 1946.

37. Lucke, R. W.; McMillan, W. N.; Thorp, F., Jr., and Tull, C.: The Relationship of Nicotinic Acid, Tryptophan and Protein in the Nutrition of the Pig, J. Nutrition **33**: 251, 1947.

38. Krehl, W. A.; Sarma, P. S.; Teply, L. J., and Elvehjem, C. A.: Factors Affecting the Dietary Niacin and Tryptophan Requirement of the Growing Rat, J. Nutrition **31**: 85, 1946. Krehl, W. A.; Sarma, P. S., and Elvehjem, C. A.: The Effect of Protein on the Nicotinic Acid and Tryptophan Requirement of the Growing Rat, J. Biol. Chem. **163**: 403, 1946. Krehl, W. A.; Henderson, L. M.; de la Huerga, J., and Elvehjem, C. A.: Relation of Amino Acid Imbalance to Niacin-Tryptophan Deficiency in Growing Rats, ibid. **166**: 531, 1946.

corn, when added to such a ration at a level of 3 per cent, produces a nicotinic acid deficiency in the rat which can be completely counteracted by either tryptophan or nicotinic acid. The addition of gelatin at levels of 3 or 6 per cent produces a similar result.

What are the peculiarities of the amino acid mixture in acid hydrolysates of protein or the amino acid makeup of tryptophan free proteins that induce such effect? No precise answer can be given on this point although it has been shown that the amino acid aminoacetic acid (glycine) is one (of perhaps many) which is capable of inducing an increased nicotinic acid requirement in the rat. Evidence is available,[39] however, to show that this growth inhibiting effect due to amino acids is not specific for any one particular amino acid but may in fact be produced by a mixture of synthetic amino acids equivalent to 2 per cent of an acid hydrolysate of casein. It is possible that the growth inhibition may be due to alterations in the intestinal flora, since the effect of aminoacetic acid is eliminated when dextrin is used as the carbohydrate in place of sucrose. Of course a mechanism involving tissue synthesis of nicotinic acid might very well be involved, or perhaps both of these mechanisms are concerned in this complex interrelationship between nicotinic acid and tryptophan. Only additional research can answer these questions.

That other species are susceptible to the effects described can be seen from work with chicks [40] in which it was shown that the nicotinic acid requirement of the chick was influenced by the kind and amount of protein used in the ration. Gelatin produced unfavorable growth results when nicotinic acid was omitted from the diet, and this growth depression could be completely counteracted with either tryptophan or nicotinic acid. When combinations of the amino acids arginine, aminoacetic acid and alanine were used, nicotinic acid deficiency symptoms were also produced.

No definite evidence is as yet available which completely elucidates the mechanism of the niacin-tryptophan relationship. As stated, certain evidence strongly supports the idea that the intestinal flora may contribute importantly to nicotinic acid synthesis. Another line of evidence has been advanced which supports the contention that tryptophan may serve as a metabolic precursor of nicotinic acid. This is based on the finding [41] that the excretion of N^1-methylnicotinamide, the chief urinary excretory product of nicotinic acid metabolism, is much increased following the administration of l(-) or dl tryptophan to the rat. Such a hypothesis is certainly attractive, and the correlation between N^1-methylnicotinamide excretion and tryptophan ingestion has been extended to a number of species, including man. Work with Neurospora mutants however has so far failed to establish any direct mechanism or metabolic pathway from tryptophan to nicotinic acid,[42] although a relationship between this vitamin and tryptophan similar to the rat and other species is well established for certain of these mutants. This of course does not prove that a direct synthesis of nicotinic acid from tryptophan does not exist.

The recent observation [43] that pyridoxine deficient animals excrete less N^1-methylnicotinamide after the administration of tryptophan may help to throw some light on the indicated metabolic conversion of tryptophan to nicotinic acid and at least "indicates that the normal formation of xanthurenic acid in B_6 deficiency is not responsible for the impaired tryptophan to nicotinic acid transformation." This observation might in a sense be considered an extension of the earlier study by Singal and his associates, who observed an increased excretion of N^1-methylnicotinamide as a result of administering pyridoxine to normal and nicotinic acid deficient dogs.

It might be pointed out that, since niacin may exert a tryptophan sparing action, possibly because of its favorable influence on tryptophan utilization,[44] the administration of tryptophan might correspondingly spare or reduce the metabolic need for the vitamin so that the excess not needed for other purposes is then methylated and excreted.

Aside from the theoretical aspects of why both tryptophan and nicotinic acid have similar growth promoting effects, it is gratifying to note that recent experiments with human beings [45] indicate that "tryptophan may be an important precursor of nicotinic acid in the human as well as the rat and may explain the antipellagragenic activity of certain foods such as milk which are low in nicotinic acid but rich in good protein." It might be noted that here no consideration is given to the known favorable effect of milk on the synthetic mechanism of the bacterial flora in experimental animals at least.

The relationship between proteins or amino acids and vitamins is also indicated in the evident importance of pyridoxine in the metabolism of amino acids. The vitamin B_6 group of vitamins has been shown to be important in two fundamental reactions involving amino acids: (*a*) catalyzing transamination [46] and (*b*) catalyzing the decarboxylation of certain amino acids.[47]

A specific role of pyridoxine seems to be involved in tryptophan metabolism,[48] in which case the administration of l(-)tryptophan to pyridoxine deficient rats results in the excretion of xanthurenic acid rather than kynurenic acid, the normal end product of tryptophan metabolism. Kynurenic acid and more interestingly d(+) tryptophan do not lead to xanthurenic acid excretion in B_6 deficiency; xanthurenic acid passes through the pyridoxine deficient rat unchanged.

That the level of dietary protein is important in determining the pyridoxine requirement is evident from the observation [49] that a diet containing a 60 per cent level of casein produced much earlier death in mice than one in which the protein level was 10 per cent. "Although pyridoxine restored growth and minimized the excretion of chromogen on both diets, about three times as much pyridoxine was required on 60 per cent of casein as when 20 per cent was fed."

39. Henderson, L. M.; Deodhar, T.; Krehl, W. A., and Elvehjem, C. A.: J. Biol. Chem., to be published.
40. Briggs, G. M.; Groschke, A. C., and Lillie, R. J.: Effect of Proteins Low in Tryptophan on Growth of Chickens and on Laying Hens Receiving Nicotinic Acid-Low Rations, J. Nutrition **32**: 659, 1946.
41. Rosen, F.; Huff, J. W., and Perlzweig, W. A.: The Effect of Tryptophan on the Synthesis of Nicotinic Acid in the Rat, J. Biol. Chem. **163**: 343, 1946.
42. Bonner, David, and Tatum, E. L.: Personal communication to the authors.
43. Rosen, F.; Huff, J. W., and Perlzweig, W. A.: The Role of B_6 Deficiency in the Tryptophan-Niacin Relationship in Rats, J. Nutrition **33**: 561, 1947.
44. Krehl, W. A.; de la Huerga, J., and Elvehjem, C. A.: Tryptophan Studies: The Effect of Niacin on the Utilization of Tryptophan, J. Biol. Chem. **164**: 551, 1946.
45. Sarett, H. P., and Goldsmith, G. A.: The Effect of Tryptophan on the Excretion of Nicotinic Acid Derivatives in Humans, J. Biol. Chem. **167**: 293, 1947.
46. Schlenk, F., and Snell, E. E.: Vitamin B_6 and Transamination, J. Biol. Chem. **157**: 425, 1945.
47. Gunsalus, I. C., and Bellamy, W. D.: A Function of Pyridoxal, J. Biol. Chem. **155**: 357, 1944.
48. Reid, D. F.; Lepkovsky, S.; Bonner, E., and Tatum, E. L.: The Intermediary Metabolism of Tryptophan in Pyridoxine-Deficient Rats, J. Biol. Chem. **155**: 299, 1944.
49. Miller, E. C., and Baumann, C. A.: Relative Effects of Casein and Tryptophan on the Health and Xanthurenic Acid Excretion of Pyridoxine-Deficient Mice, J. Biol. Chem. **157**: 551, 1945.

Because of the ever increasing interest in the use of synthetic amino acids in nutritional studies, some mention must be made of certain recent experiments made with these materials. The long chain of research on the qualitative and quantitative amino acid requirement stemming mostly from the laboratory of Rose has culminated in the successful use of diets which can be entirely characterized in regard to their amino acid makeup. As might be expected with such relatively short time experience with amino acids there is no complete agreement as to the number or relative amounts of the so-called "essential" amino acids required by the various species studied. Clarification of these disagreements should come rapidly as a result of the intensive research in this field. A generalization that might be made concerning amino acids and their application in nutritional studies can be gleaned from the observation [50] that rats fed a mixture of amino acids gained weight rapidly and usually exhibited weight gains in ten days as great as on diets containing an isonitrogenous quantity of casein. The omission of any of the essential amino acids from the diet resulted in a prompt loss in appetite followed by a weight loss. It must be noted, however, that these experiments were conducted with adult rats, and evidence is available [51] which shows that the young growing rat does not do as well on mixtures of amino acids as on casein in equivalent amounts. Further evidence of this nature is observed with mice, and the factor which induces better growth under these conditions has been designated strepogenin,[52] which is a peptide-like material found in certain intact proteins or incomplete protein hydrolysates. Whether this factor has practical significance in human nutrition is difficult to ascertain. It is known, however, that properly prepared mixtures of the crystalline amino acids are adequate for the protein nitrogen needs and definite weight gain of patients over "long" periods of time. Given parenterally as the sole source of protein nitrogen intake, these amino acids are adequate for nitrogen balance in human patients.[53] In these same experiments no toxicity to the unnatural forms of seven essential amino acids could be demonstrated. Although the amino acids were generally well tolerated when given parenterally, phenylalanine had a definitely limited effect on tolerance. It has been shown however [54] that mixtures of natural amino acids can be given to dogs at a much higher intravenous rate without inducing vomiting than can similar mixtures containing racemic amino acids. In these experiments aminoacetic acid increased the dog's tolerance to the infusion of certain of the mixtures containing racemic amino acids.

Lack of agreement is evident concerning the undesirable effects of the unnatural forms of certain amino acids for rat growth. Factors such as the relative amount of the respective amino acid used and the type of carbohydrate employed in the diet may explain a large part of the differences observed. Most of the evidence supports the contention that the unnatural forms of the essential amino acids at least do not significantly impair the animal's performance. It has been shown that dl serine, unlike the natural isomer, produces proteinuria, kidney and liver damage and high mortality in rats.[55] Interestingly enough, the administration of ample amounts of B vitamins substantially reduced these effects. Of the vitamins tested, pyridoxine proved most effective in its protective action against dl serine.

Another point of disagreement has arisen as a result of the several studies on the relative lipotropic efficacy of methionine when fed as the free amino acid and as a constituent of an intact dietary protein. A reasonable explanation for the conflicting conclusions, and well illustrative of the present theme that many interrelated factors may alter the dietary requirement, is offered in the finding that essential amino acids have a definite effect on the lipotropic efficacy of methionine.[56] "No significant difference was noted in the lipotropic effect exerted by methionine when fed as the free amino acid or in casein, provided the essential amino acids were approximately equalized in the two diets."

The great interest in amino acids has revived in large measure the older problem concerning the biologic value of proteins. The studies on this problem may in general be summarized by the observation [57] that "the comparison of the chemical and biologic methods supports the hypothesis that the biologic value of a protein is due to its content of essential amino acid and is limited by the one essential amino acid which is present in the least amount relative to body requirements." One of course should add that, as indicated earlier, other components of the diet may play an important role in determining the biologic value of certain proteins. Then too, it is now recognized that there are certain as yet unknown factor(s) accompanying some proteins which have definite effects on such vital physiologic processes as growth, reproduction and lactation in experimental animals.

That certain amino acids may play more or less specific roles in determining the biologic value of a protein is indicated in the observed effectiveness of methionine in sparing nitrogen. It has been shown for example [58] that methionine added to diets which contain egg white and casein respectively spared nitrogen; this sparing action was more obvious with the latter protein. The sparing action is apparently produced through a reduction in the excretion of urea nitrogen.

VITAMINS AND VITAMIN INTERRELATIONSHIPS

Despite their great physiologic activity in small amounts, vitamins as such are relatively "nontoxic" at least in several multiples of even large therapeutic doses, and an excessive intake of a vitamin results for the most part in its excretion in the urine unchanged. This is in sharp contrast to most "drugs" and hence more or less places the vitamins in a separate category, at least from the aforementioned standpoints.

It has been shown though that, in the case of the B complex vitamins, treatment with the single vitamin indicated by the predominant signs in a patient with

50. Frazier, L. E.; Wissler, R. W.; Steffee, C. H.; Woolridge, R. L., and Cannon, P. R.: Studies in Amino Acid Utilization: I. The Dietary Utilization of Mixtures of Purified Amino Acids in Protein Depleted Adult Albino Rats, J. Nutrition **33**: 65, 1947.

51. Henderson, L. M.; Krehl, W. A., and Elvehjem, C. A.: Unpublished work.

52. Woolley, D. W.: Some Correlations of Growth Promoting Powers of Proteins with Their Strepogenin Content, J. Biol. Chem. **162**: 383, 1946.

53. Madden, S. C.; Bassett, S. N.; Remington, J. H.; Martin, F. J. C.; Woods, R. R., and Shull, F. W.: Amino Acids in Therapy of Disease, Surg., Gynec. & Obst. **82**: 131, 1946.

54. Howe, E. E.; Unna, K.; Richards, G., and Seeler, A. O.: Comparative Tolerance to Mixtures of Natural and Racemic Amino Acids on Intravenous Infusion in the Dog, J. Biol. Chem. **162**: 395, 1946.

55. Fishman, W. N., and Artom, C.: Some Dietary Factors Which Reduce the Toxicity of dl Serine in Rats, Proc. Soc. Exper. Biol. & Med. **57**: 241, 1944.

56. Beveridge, J. M. R.; Lucas, C. C., and O'Grady, M. K.: The Effect of the Nature and Level of Protein and Amino Acid Intake on the Accumulation of Fat in the Liver, J. Biol. Chem. **154**: 9, 1944.

57. Mitchell, H. H., and Block, R. J.: Some Relationships Between the Amino Acid Contents of Proteins and Their Nutritive Value for the Rat, J. Biol. Chem. **163**: 599, 1946.

58. Allison, J. B.; Anderson, J. A., and Seeley, R. D.: Some Effects of Methionine on the Utilization of Nitrogen in the Adult Dog, J. Nutrition **33**: 361, 1947.

a deficiency disease may result in the precipitation of severe manifestations of other deficiencies. This would argue in favor of the rational use of B complex mixtures in the treatment of deficiency diseases, since in most cases a complex deficiency is present, though not always readily apparent by the available clinical methods.

Examples of some of the more obvious interrelationships of vitamins (though by no means completely understood) are (*a*) the vitamin A activity of certain carotenoid pigments, (*b*) the antirachitic action of the several vitamin D compounds and (*c*) the effectiveness of the several compounds having vitamin K activity in promoting blood coagulation. Other examples in the B complex group of vitamins are seen in the similarity of activity exhibited by the B_6 group (pyridoxine, pyridoxal and pyridoxamine) and the effectiveness of niacin, niacinamide and nikethamide (di-ethyl nicotinamide) in pellagra.

It is understood, however, that these various compounds with similar physiologic activity are active because certain essential and fundamental similarities exist in their chemical structure

Illustrative of another kind of vitamin interrelationship (many of which exist and probably more will be discovered) is the observation [59] that the utilization of tocopherols in patients suffering from muscle dystrophy was enhanced by the simultaneous injection of inositol. It has been suggested that tocopherol forms a condensation product with inositol in the gastrointestinal tract and that the inherent defect in muscular dystrophy is in a deficiency of this condensation product.

Other work with alpha-tocopherol [60] indicates that it improves the effectiveness of suboptimal quantities of linoleic acid in preventing or curing the essential fatty acid deficiency syndrome in the rat. More interesting, and possibly of some practical importance, is the recent observation [61] that dietary supplementation with alpha-tocopherol favorably influences milk-fat concentration and total "4 per cent milk" production in the dairy cow, although simultaneous use of vitamin A supplementation negates this effect of tocopherol. Vitamin A supplementation alone increased the vitamin A content of the milk "at the partial expense of the carotene content," but the combined supplementation of vitamins E and A "allowed the A content of the milk to rise without a pronounced fall of carotene."

Another practical relationship of vitamins is demonstrated in the finding that, although cattle are able to synthesize vitamin C to meet their requirements, the amount of synthesis is greatly reduced in vitamin A deficiency. In such cases the injection of vitamin C has had a beneficial effect on sterility

Turning to the B vitamins, it has been shown in rats [62] that thiamine and pantothenic acid influence the mobilization of riboflavin in the liver, and during the mobilization a portion of the transported riboflavin is excreted in the urine.

It has also been observed that on diets which contain insoluble sulfonamides the pantothenic acid utilization, as reflected by increased concentration of this vitamin in the liver of pantothenic acid deficient rats, is favorably influenced by the inclusion of biotin and folic acid in the ration.[63]

Folic acid also seems to play an important role [64] in improving the absorption of vitamin A and carotene in sprue patients. This action is probably due to the influence of folic acid in favoring a normal functioning of the gastrointestinal tract.

The foregoing examples are indications only of the multiplicity of complex relationships which may exist between vitamins and between vitamins and the other nutrients. The mechanisms involved in the many relationships can be clarified only by intensive research.

In a consideration of the effect of diet on the requirement of specific nutrients one must also consider factors which influence availability of vitamins. To illustrate this type of imbalance, it has been shown for example that certain fish products which are consumed in the raw state by man contain the enzyme thiaminase, which may appreciably destroy thiamine in the gastrointestinal tract.[65] This type of action is distinguished from the earlier mentioned "toxicants" and "inhibitors" in that here a substance is present in food that destroys another substance that is required by the host although the destructive agent is not harmful to the host directly. Obviously, reason must be exercised in estimating the practical significance of such an observation, but the fact that this condition does exist is worthy of consideration.

Another of the important factors that affect the physiologic availability of a vitamin is apparent from the finding that of the thiamine present in live compressed yeast only a small portion is actually available to the host.[66]

That there are many other extrinsic factors which may favorably or adversely affect the animal's requirement for nutritive factors is clear when one considers the general differences between species and the strain variations within species. To cite such a species variation, one may point to the important difference between the rat and the chick in regard to their respective abilities to synthesize choline, the rat having a much more efficient mechanism for this synthesis than the chick. Of course the chick's requirement for the "micronutrients" in general seems to be much more critical than the rat's. This holds true also for the guinea pig. Strain variations in certain vitamin requirements are evident in at least the rat and the mouse.

The influence of the interrelationship between hormones and dietary constituents is certainly evident, and this whole field of investigation is advancing with great rapidity.

Although the factors involved in determining what kind and how much of a particular nutrient is required for every normal physiologic function through the entire life cycle of the organism are complex, it must be remembered that what has so far been learned about nutrient requirements still serves as a useful and practical tool which may be further used in elucidating some of the more complex problems.

59. Milhorat, A. T., and Bartels, W. E.: The Defect in Utilization of Tocopherol in Progressive Muscular Dystrophy, Science **101**: 93, 1945.
60. Howe, E. L., and Harris, P. L.: Covitamin Studies: V. The Interrelation of Alpha-Tocopherol and Essential Unsaturated Fatty Acids, J. Nutrition **31**: 699, 1946.
61. Harris, P. L.; Swanson, W. J., and Hickman, K. C. D.: Covitamin Studies: VI. Effect of Tocopherol Supplementation on the Output of Vitamin A, Carotene and Fat by Dairy Cows, J. Nutrition **33**: 411, 1947.
62. Supplee, G. C.; Jensen, O. G.; Bender, R. C., and Kahlenberg, O. J.: Factors Affecting the Riboflavin Content of the Liver, J. Biol. Chem. **144**: 79, 1942.
63. Wright, L. D., and Welch, A. D.: "Folic Acid," Biotin and Pantothenic Acid Deficiency and the Liver Storage of Various Vitamins in Rats Fed Succinylsulfathiazole in Highly Purified Rations, J. Nutrition **27**: 55, 1944.
64. Darby, W. J.; Kaser, M. M., and Jones, E.: The Influence of Pteroylglutamic Acid (a Member of the Vitamin M Group) on the Absorption of Vitamin A and Carotene by Patients with Sprue, J. Nutrition **33**: 243, 1947.
65. Melnick, D.; Hochberg, M., and Oser, B. L.: Physiological Availability of the Vitamins: II. The Effect of Dietary Thiaminase in Fish Products, J. Nutrition **30**: 81, 1945.
66. Parsons, H. T.; Williamson, A., and Johnson, M. L.: The Availability of Vitamins from Yeast: I. The Absorption of Thiamine by Human Subjects from Various Types of Bakers' Yeast, J. Nutrition **29**: 373, 1945.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 NORTH DEARBORN STREET - - CHICAGO 10, ILL.

Cable Address - - - - "Medic, Chicago"

Subscription price - - - - - Eight dollars per annum in advance

Please send in promptly notice of change of address, giving both old and new; always state whether the change is temporary or permanent. Such notice should mention all journals received from this office. Important information regarding contributions will be found on second advertising page following reading matter.

SATURDAY, OCTOBER 4, 1947

THE TREATMENT OF ARTHRITIS

In few other fields of medicine is there less exact knowledge of definition, causes or methods of treatment than in arthritis, commonly called rheumatism. Almost as many classifications are available as there are specialists. Most physicians and the public as well group the entire range of disturbances under the words "rheumatoid conditions." One writer [1] has included all these conditions under the term "rheumatic affections" with the main subheadings "rheumatic fever," "rheumatoid arthritis" (which includes many different forms), "osteoarthritis," "fibrositis" and "gout." The articles on rheumatic conditions in medical periodicals are numerous. In the absence of any scientific statistics, except for rheumatic fever, almost any form of treatment seems to produce about 20 per cent of claimed cures or arrest of cases, 30 per cent of improvement and 50 per cent of failure.

For the relief of symptoms a tremendous armamentarium of therapeutic agents is available; with these the competent therapeutist may play on his case like a composer at the keys of a piano. By the use of drugs, physical therapy, improved nutrition, orthopedic treatment, climatic and spa treatment, functional therapy, psychosomatic medicine and a number of miscellaneous measures, many symptoms may be relieved and often the disease may seem to be fully controlled.

Among the methods especially conspicuous at this time—exclusive of physical therapy, which has had some thousands of years of trial—present interest in treatment involves the well recognized use of the salicylates, gold compounds and various forms of vitamin D in high dosage. Continental authorities report cure or striking improvement in a great majority of their patients treated with gold, but American authors report a little over one half of the cases showing improvement to some degree. The figures are not impressive. The results of treatment with gold preparations, for example, can be duplicated by patients treated with a variety of other methods or simply with general therapy. Furthermore, most American specialists in the field of arthritic conditions have noted severe reactions to the use of preparations of gold, particularly in patients inclined to respond allergically to various medicaments.

The advocates of high dosage vitamin D, including Dreyer and Reed,[2] who introduced the method in 1935, have been unable to present statistical evidence much better than that credited to gold or general therapy. Few records seem to be available of cases of rheumatoid arthritis actually arrested, although well over one half of all the patients in each of the published reports on the use of vitamin D seem to have been improved. Thus Abrams and Bauer [3] stated that the "improvement noted always took place slowly. The beneficial results in all cases were short lived. During the follow-up study, the authors noted that the arthritis gradually became as severe as it had been in the pretreatment period." Some emphasis has been placed on the fact that there are varieties of vitamin D. Most of the recent investigation has involved the use of a proprietary preparation known as activated vaporized sterol ("ertron"). Some studies of small groups of cases such as those reported by Farley, Spierling and Kraines [4] and by Snyder and Squires [5] insist that the product is of definite value in the treatment of arthritis and that its use "is not associated with any more danger than is usually encountered with other accepted forms of therapy if the medication is given under the advice and control of a physician." Notwithstanding this comment, a considerable number of instances are reported in periodical literature in which hypercalcemia, vitamin D intoxication and metastatic calcification have occurred. The toxic manifestations accredited to excess dosage include nausea, anorexia, digestive upsets and nosturia. In most instances tissue calcifications have followed tremendous doses, which were usually self administered over long periods of time and without intervals of rest. There seems to be no doubt that such dosages may stimulate hypercalcemia. Nevertheless, instances of generalized calcification occurred before the use of such preparations. Perhaps combinations of conditions peculiar to the individual may be involved in such instances.

Beckman has included activated vaporized sterol with other preparations which he dismisses by saying, "I do not feel that any of the following at present merits the space that a full discussion of the methods of its employment would require." P. S. Hench [6] has stated that "the majority of experienced rheumatologists regard it ("ertron") as essentially useless."

1. Beckman, H.: Treatment in General Practice, Philadelphia, W. B. Saunders Company, 1945, p. 198.

2. Dreyer, I., and Reed, C. I.: The Treatment of Arthritis with Massive Doses of Vitamin D, Arch. Phys. Therapy **16**: 537 (Sept.) 1935.

3. Abrams, N. R., and Bauer, W.: The Treatment of Rheumatoid Arthritis with Large Doses of Vitamin D: Critical Evaluation, J. A. M. A. **111**: 1632 (Oct. 29) 1938.

4. Farley, R. T.; Spierling, H. F., and Kraines, S. H.: A Five-Year Study of Arthritic Patients, Indust. Med. **10**: 341 (Aug.) 1941.

5. Snyder, R. G., and Squires, W. H.: Follow-Up Study of Arthritic Patients Treated with Activated Vaporized Sterol, New York State J. Med. **41**: 2332 (Dec.) 1941.

6. Hench, P. S.: Therapeutic "Information Please": Arthritis, J. A. M. A. **132**: 974 (Dec. 21) 1946.

Bauer and Freyberg [7] expressed their belief that the electrically activated ergosterol appears to be less toxic than vitamin D in other forms. Magnuson, McElvenny and Logan [8] noted intolerance to the medication in 26 of 180 patients treated by a combination of orthopedic and physical methods with electrically activated, heat-vaporized ergosterol for an average period of about eight months. They recorded 90 per cent of improvement with this regimen and about 8 per cent of complete failure. They did not find that the symptoms of intolerance were related to either hypercalcemia or renal damage.

In the light of the evidence here discussed, the treatment of arthritis would seem to include such well established methods as physical therapy and orthopedic treatment, prescribed as indicated by the nature of the individual case. The use of proper medication for the relief of pain is warranted. All other methods such as the use of vaccines, fever, sulfur, vitamins (including activated vaporized sterol), bee venom, histamine, penicillin and sulfonamide compounds, roentgen radiation and induced jaundice are still in an experimental and unestablished stage, and the weight of evidence points to the belief that most of them are useless.

HYALURONIDASE (THE SPREADING FACTOR) IN HYPODERMOCLYSIS

McClean [1] and Hoffman and Duran-Reynals [2] established the existence in the mammalian testicles of factors which modify the permeability of connective tissue. Later work established the wide distribution in nature of similar factors as well as their enzymic character. The most important sources of "spreading factor" known today are mammalian testes, invasive bacteria, snake venom and leech extracts. As noted in a previous editorial in THE JOURNAL, Chain and Duthie [3] regard the enzyme hyaluronidase and the spreading factor as the same substance. They showed that fairly pure preparations of testicular spreading factor also possess hyaluronidase activity. Hobby and his co-workers have shown that all preparations which contain hyaluronidase also contain the spreading factor. Hyaluronidase was shown to possess a variety of biologic activities such as bacterial invasiveness and fertilization of the mammalian ovum. Thus hyaluronidase not only produces the spreading reaction but also has the activity to decapsulate certain strains of streptococci, to remove the cumulus cells surrounding the ovum of the rabbit and to decrease the viscosity of synovial fluid.

The spreading activity of hyaluronidase, according to McClean and to Duran-Reynals, is due to the removal of a tissue barrier to fluid diffusion thought to be a hyaluronic acid gel present in the ground substance of the connective tissues. Duran-Reynals states that the spreading action is so rapid with optimal enzyme concentrations that the bleb which results following injection is completely flattened within a minute or less. The enzyme produces a qualitatively similar response in subcutaneous tissue, muscle and possibly in most tissues. Sannella [4] suggested that the enzyme might be useful in a number of clinical problems involving fluid and drug administration, among them in the facilitation of hypodermoclysis.

Hechter and his co-workers [5] employed hyaluronidase to facilitate hypodermoclysis. They found that microgram amounts of a preparation of hyaluronidase facilitate the administration and absorption of fluids administered subcutaneously in both man and the experimental animal. The effect of the spreading factor seems to be dependent on the state of the subcutaneous connective tissues. When the connective tissues are loosely organized, the enzyme increases the rate of administration about twofold. Both in guinea pigs and in 2 patients in whom the subcutaneous tissues were well developed, the rate of fluid administration was increased to a much greater extent by the subcutaneous administration of hyaluronidase prior to clysis. The authors obtained direct evidence that hyaluronidase prevents pain due to distention produced by fluid administration in studies with normal adults who were given an intradermal injection of 1 cc. saline solution with and without hyaluronidase. Without enzyme this volume of fluid introduced intracutaneously produced intense pain which persisted for ten to fifteen minutes, while the same volume administered with hyaluronidase did not produce any pain. The authors point out further that the effect of hyaluronidase in facilitating clinical hypodermoclysis is obtained with such small doses of enzyme extract that hypersensitivity to testis protein does not result. The administration to human volunteers of milligram amounts of the enzyme preparation did not produce a toxic reaction aside from a nonspecific transient foreign protein reaction. These reactions did not occur when the dosage was decreased to 200 micrograms. The enzyme hyaluronidase may also be useful for the subcutaneous administration of large amounts of plasma and drugs. In newborn infants the swellings produced by the subcutaneous injections of 30 cc. amounts of plasma with hyaluronidase disappeared within sixty minutes; without enzyme, six to twenty-four hours were required before the swellings disappeared.

7. Bauer, J. M., and Freyberg, R. H.: Vitamin D Intoxication with Metastatic Calcification, J. A. M. A. **130**: 1208 (April 27) 1946.

8. Magnuson, P. B.; McElvenny, R. T., and Logan, C. E.: A Clinical Study of One Hundred and Eighty Cases of Arthritis: The Use of Steroid Complex (Whittier), Orthopedic and Other Supportive Measures in Chronic Arthritis, J. Michigan M. Soc. **46**: 1 and 71 (Jan.) 1947.

1. McClean, D.: Influence of Testicular Extract on Dermal Permeability and Response to Vaccine Virus, J. Path. & Bact. **33**: 1045 (Oct.), 1930.

2. Duran-Reynals, F.: Tissue Permeability and the Spreading Factors in Infection, Bact. Rev. **6**: 197 (Dec.) 1942.

3. Chain, E., and Duthie, E. S.: A Mucolytic Enzyme in Testis Extracts, Nature **144**: 977 (Dec. 9) 1939.

4. Sannella, L. S.: The Effect of Testicular Extract on the Distribution and Absorption of Subcutaneous Saline Solution, Yale J. Biol. & Med. **12**: 433 (March) 1940.

5. Hechter, O.; Dopkeen, S. K., and Yudell, M. H.: The Clinical Use of Hyaluronidase in Hypodermoclysis, J. Pediat. **30**: 645 (June) 1947.

Current Comment

THE GENERAL PRACTITIONER'S MEDAL

The announcement by the Board of Trustees of the American Medical Association of the annual bestowal of a medal on a general practitioner for exceptional service to his community has attracted the attention of the nation. Already many nominations have been made by women's clubs, Rotary clubs and other community groups. The editorial from the Providence, R. I., *Journal*, which follows, presents so charmingly the case for the general practitioner that we reprint it gladly in THE JOURNAL:

General Practitioner

News item: On Jan. 7 the American Medical Association will give a gold medal to a general practitioner selected from the country at large.

Dear Medical Ass'n.,

I been hoping you'd do something like this for over 35 years, and I'd like it to be our family doctor, who has been doctoring us ever since we thought the first baby was a tumor.

You probably never heard of him. He's not one of your big men—never invented anything in a medical way except a little spool and darning needle gadget for removing ingrowing hairs, and the only time he got into your journal, he says, was the time he had a queer fever of his own. But I feel better the minute he comes into the house, for he doesn't come to see a lot of organs, he comes to see ME. He knows me—knows us all—inside and out, warts, scars, disposition, everything. He knows I can't eat tuna fish, that I get flighty with two degrees of fever, and overdo everything from mowing the lawn to drinking beer. And somehow he manages to add all these things up to make me feel like somebody. I don't believe I'd ever be an "interesting case" to him no matter what I got. I'd just be me. That's really something these days. I don't have to call on him often, but I'd be lost without him.

He's a grand all-round man, good story teller, good listener, good friend, a sort of father confessor with the aid of a stethoscope. It's unbelievable the good he's done in our neighborhood. A lot of people owe him money. I'd certainly like to see him get the medal.

Yours sincerely,

Almost Anybody

RECOVERY FROM HEMORRHAGIC SMALLPOX

Hemorrhagic smallpox is the most malignant form. Death may occur before the outbreak of the eruption gives a clue to the nature of the infection. Weeks and McClelland [1] report the case of a patient who recovered. A young sailor on a U. S. Naval ship which had been off the China coast for two months had been permitted to go each week to Shanghai. He felt well when the ship left for Saipan but on the second day at sea there developed a dull bilateral pain at the costovertebral angles and in the flanks which caused him to bend. At this early stage he had frequency of urination and the urine was dark and cloudy. The next day he had chills and a temperature of 104 F. and was put to bed. On the fourth day an erythematous, macular rash appeared on the inner aspect of both thighs and spread to the trunk, arms, lower legs, abdomen, chest, palms, soles and face. Large purpuric extravasations were noted over the buttocks following injections of penicillin. Hemorrhagic extravasations were present in both conjunctivas and scleras. The nose was rimmed with blood crusts, the lips swollen and crusted by hemorrhagic areas. Fresh blood was noted about the anus. Once the patient vomited blood. Some of the vesicles coalesced to form bullous lesions filled with dark hemorrhagic fluid. The patient became delirious. Here obviously was fulminating hemorrhagic smallpox with hemorrhagic pneumonia, bleeding from the intestinal tract and toxic nephritis. The patient was placed in an oxygen tent, given a transfusion of 600 cc. of ideally matched fresh citrated whole blood. Adequate intake and output were maintained by giving 5 per cent dextrose in isotonic sodium chloride solution or distilled water parenterally, to which supplements of vitamins B, C (ascorbic acid) and K were added. Since death in fulminating smallpox is frequently due to streptococcic septicemia and secondary pneumonia, the patient was given 200,000 units of the calcium salt of penicillin dissolved in 2 cc. of isotonic sodium chloride solution every two hours intramuscularly. Little improvement was noted for two days; then bleeding from the rectum and mouth decreased and the erythema began to fade, leaving the skin about the vesicles a dark reddish brown. Cultures of the vesicular fluid and Paul's test were negative. Whole blood transfusions were continued daily. On the fifth hospital day the temperature dropped to 100.2 F., the pulse rate to 90 and the respiratory rate to 24. The patient became rational, the lungs had almost entirely cleared and the bleeding generally seemed under control. On the tenth hospital day, the penicillin dosage was reduced to 100,000 units every two hours and the transfusions were discontinued. The patient became afebrile on the eighteenth hospital day. He had received in all 26,500,000 units of penicillin intramuscularly. He was discharged from the hospital on the forty-seventh day of his illness with the skin completely clear, and he was rapidly regaining the great amount of weight lost. The massive dosage of penicillin given this patient may not have changed the primary course of his disease, but it probably prevented serious secondary infection, as there was not any frank pustulation. This patient had never been successfully vaccinated against smallpox, although attempts at vaccination had been made at 6 and 12 years of age and again on entering the Navy in 1943. While the last attempt had been recorded as an "accelerated reaction," the patient was unable to recall any type of reaction in any of the three attempts at immunization, and he did not have a vaccination scar. The lack of visible response to the attempted vaccination after entering the Navy was no doubt misinterpreted. Every physician should thoroughly understand and be able to properly interpret the different types of reactions to smallpox vaccination. If when this sailor entered the Navy his vaccination had been properly followed up and repeated until a definite response was obtained he probably would not have contracted the disease that nearly took his life.

1. Weeks, Kenneth D., and McClelland, Warren S.: Hemorrhagic Smallpox; Report of a Case with Recovery, Naval Medical Bulletin, Vol. 47, No. 4, July-August 1947.

ORGANIZATION SECTION

Official Notes

THE INTERIM SESSION OF THE AMERICAN MEDICAL ASSOCIATION

After careful investigation of the availability of accommodations for a midwinter (supplemental) session of the American Medical Association in the short time at its disposal, the Board of Trustees selected Cleveland as the place of that session, since the accommodations for meeting places and for sleeping rooms seemed to be adequate and a convenient time seemed to be open. The midwinter session will therefore be held in Cleveland, Jan. 5 to 8, 1948, the first two days being devoted to a session of the House of Delegates and January 7 and 8 to General Scientific Meetings devoted exclusively to the general practitioner.

The Scientific Meetings, the Scientific Exhibit and the Technical Exposition will be housed in the Cleveland Auditorium, but the place of meeting for the House of Delegates has not yet been selected. The Council on Scientific Assembly, in cooperation with the Board of Trustees, will prepare the program for the Scientific Meetings.

Information concerning hotel reservations will be published as soon as arrangements concerning this matter have been completed.

On January 5 and 6, the Council on Industrial Health of the American Medical Association will hold its Eighth Annual Congress on Industrial Health at the Cleveland Auditorium.

Washington Letter

(From a Special Correspondent)

Oct. 2, 1947.

Research on Heart Disease and Hypertension

Extensive research on heart diseases and high blood pressure has been launched by the U. S. Public Health Service, and an estimated million dollars is to be spent on the project during the next year. Two principal research phases of the program are (1) studies financed by the Public Health Service in universities and hospitals and (2) research and surveys to be handled by the service itself and the states. Present work is planned to lay the groundwork for increased heart research. The program includes research on arthritis. Public health officials report that 2,000,000 Americans died of heart and blood-vessel diseases during World War II, while warfare claimed the lives of only 325,000 Americans. The heart and circulatory diseases kill five times as many persons annually in the United States as cancer does, and rheumatic diseases kill more children between 10 and 15 years of age than does any other disease.

Denies White Bread Flour Has Adverse Effect on Human Beings

Paul B. Dunbar, Food and Drug Commissioner, stated that "there is not as yet an iota of evidence of any adverse effect on human beings" from the use of nitrogen trichloride, which has been used for some twenty years to age white flour for commercial use. The Food and Drug Administration and flour manufacturers have been conducting laboratory tests on the use of the so-called "agene process" since Professor Edward Mellanby, English nutritionist, reported in the *British Medical Journal* that in dogs fed on agene-treated flour there developed canine hysteria. These tests are now reported to have shown no ill effects from the process on human subjects "or other animals" than dogs. The process is used to produce in flour physical changes formerly attained by aging.

Legion Commander Denounces American Hospital Association Proposal

James F. O'Neil, national commander, American Legion, described as "selfish and short-sighted" the proposal of the American Hospital Association that Congress freeze Veterans Administration hospital construction funds until the need for more veterans' beds is better established. Mr. O'Neil said that war-disabled veterans have already been penalized by sluggish progress of the Veterans Administration hospital construction program and added that "it is unthinkable that any group should attempt to retard the program at a time when it is getting up real steam." Mr. O'Neil said that the Legion appreciates the problems of private hospitals and is vitally interested in the maintenance of their standards.

Coming Medical Meetings

Conference of State Medical Society Secretaries and Editors, Chicago, A.M.A. Headquarters, Nov. 7-8. Dr. George F. Lull, 535 N. Dearborn St., Chicago 10, Secretary.

American Academy of Neurological Surgery, Colorado Springs, Broadmoor Hotel, Oct. 9-11. Dr. T. C. Erickson, 1300 University Ave., Madison 5, Wis., Secretary.

American Academy of Ophthalmology and Otolaryngology, Chicago, Palmer House, Oct. 12-17. Dr. W. L. Benedict, 102 Second Ave. S.W., Rochester, Minn., Secretary.

American Association of Railway Surgeons, Chicago, Nov. 23-25. Dr. Raymond B. Kepner, 547 West Jackson Boulevard, Chicago 6, Secretary.

American Clinical and Climatological Association, Colorado Springs, Oct. 13-15. Dr. James Bordley III, Johns Hopkins Hospital, Baltimore 5, Secretary.

American Otorhinologic Society for the Advancement of Plastic and Reconstructive Surgery, New York, Nov. 13. Dr. Norman N. Smith, 291 Whitney Ave., New Haven 11, Conn., Secretary.

American Public Health Association, Atlantic City, Oct. 6-10. Dr. Reginald M. Atwater, 1790 Broadway, New York 19, Executive Secretary.

American Society for the Study of Arteriosclerosis, Chicago, Hotel Knickerbocker, Nov. 2-3. Dr. O. J. Pollak, Wilmington General Hospital, Wilmington 14, Delaware, Secretary.

American Society of Clinical Pathologists, Chicago, Drake Hotel, Oct. 28-30. Dr. A. S. Giordano, 531 N. Main St., South Bend, Ind., Secretary.

Association of American Medical Colleges, Sun Valley, Idaho, Oct. 27-29. Dr. Fred C. Zapffe, 5 S. Wabash Ave., Chicago, Secretary.

Association of Military Surgeons of the United States, Boston, Nov. 13-15. Col. James M. Phalen, Army Medical Museum, Washington 25, D. C., Secretary.

Central Neuropsychiatric Association, Galveston, Texas, Oct. 17-18. Dr. William C. Menninger, 3617 W. Sixth Ave., Topeka, Kans., Secretary.

Delaware, Medical Society of, Wilmington, Oct. 13-15. Dr. John F. Hynes, Memorial Hospital, Wilmington, Secretary.

District of Columbia, Medical Society of the, Washington, Hotel Statler, Oct. 6-8. Mr. Theodore Wiprud, 1718 M Street N.W., Washington 6, Secretary.

Indiana State Medical Association, French Lick, Oct. 28-30. Mr. Ray E. Smith, 23 E. Ohio St., Indianapolis 4, Executive Secretary.

Inter-State Postgraduate Medical Association of North America, St. Louis, Public Auditorium, Oct. 14-17. Dr. Tom B. Throckmorton, 406 Sixth Ave., Des Moines, Iowa, Secretary.

Kansas City Southwest Clinical Society, Kansas City, Mo., Municipal Auditorium, Oct. 6-9. Mr. E. Leas Clower, 630 Shukert Bldg., Kansas City 6, Executive Secretary.

New England Postgraduate Assembly, Boston, Copley-Plaza Hotel, Oct. 29-31. Dr. Leroy E. Parkins, 8 Fenway, Boston 15, Chairman.

New York State Association of Public Health Laboratories, Albany, Nov. 7. Miss M. B. Kirkbride, New Scotland Ave., Albany 1, Secretary.

Oklahoma City Clinical Society, Oklahoma City, Biltmore Hotel, Oct. 27-30. Dr. Elmer R. Musick, 512 Medical Arts Bldg., Oklahoma City, Director of Clinics.

Omaha Mid-West Clinical Society, Omaha, Oct. 27-31. Dr. John M. Thomas, 1031 Medical Arts Bldg., Omaha 2, Secretary and Director of Clinics.

Southern Medical Association, Baltimore, Nov. 24-27. Mr. C. P. Loranz, Empire Bldg., Birmingham 3, Ala., Secretary.

Southern Psychiatric Association, Birmingham, Ala., Oct. 13-14. Dr. Newdigate M. Owensby, 384 Peachtree St. N.E., Atlanta, Ga., Secretary.

Southwestern Medical Association, Phoenix, Ariz., Hotel Westward Ho, Nov. 6-8. Dr. Louis W. Breck, 116 Mills St., El Paso, Texas, Secretary.

Virginia, Medical Society of, Roanoke, Oct. 13-15. Miss Agnes V. Edwards, 1200 E. Clay St., Richmond 19, Secretary.

Wisconsin, State Medical Society of, Milwaukee, Hotel Schroeder, Oct. 6-8. Mr. Charles H. Crownhart, 110 E. Main St., Madison 3, Secretary.

GOVERNMENT SERVICES

ARMY

MEETING OF MEDICAL OFFICERS IN KOREA

The second meeting of the U. S. Army medical officers on duty in Korea was held at the 34th General Hospital near Seoul, August 13, and was attended by about fifty officers in addition to those on the staff of the hospital. The commandant, Lieut. Col. John J. Marren, introduced Col. Charles F. Ward, recently assigned as surgeon of the 24th Corps, who outlined the work of the corps surgeon's office. The chairman of the meeting, Major Robert M. Hardaway, chief of surgical service, presented a paper on "Congenital Atresia of the Ileum," which was discussed by Capt. James S. Clarke, chief of surgical service in the 71st Station Hospital. Capt. Henry T. Allgood, chief of orthopedic service, 34th General Hospital, presented a paper on "Gas Gangrene," which was discussed by Capt. J. D. Beaver, chief surgical service, 382d Station Hospital. This paper was based on the case of a soldier who had an open fracture of the astragalus; and although the wound was completely debrided within two hours after injury, gas gangrene developed and necessitated a midthigh amputation to preserve life. In the forenoon ward rounds and departmental conferences were held, and many interesting cases were discussed. In the evening a buffet dinner was enjoyed at the officers' club at the hospital. The next meeting of the medical officers in Korea was scheduled for September 24 at the 71st Station Hospital, APO 235.

RESERVE CORPS TRAINING AT CINCINNATI

The president of the University of Cincinnati, Raymond Walters, announces the establishment of a new Medical Reserve Officers' Training Corps program for the College of Medicine. The training will be voluntary, will consist of one hour of lectures each week and will involve no uniforms and no drill. Students taking the advanced course (third and fourth years in the four year program) will receive $21 a month pay from the Army, and commissions as first lieutenants in the Medical Reserve Corps will be awarded on graduation from medical school and completion of the ROTC training. The unit is one of forty-three in medical schools throughout the country and part of a broadly expanded preparedness program. In charge of the unit at the University of Cincinnati will be Major C. C. Alden Jr., formerly of Buffalo, who served as battalion surgeon with the 509th Paratroop Battalion in Europe in World War II. Major Alden was called to active duty at the completion of his internship at the Buffalo General Hospital in 1940. He parachuted into North Africa and Italy, served at Anzio and in the Battle of the Bulge, was twice taken prisoner and twice escaped, was awarded the Distinguished Service Cross, Legion of Merit, Silver Star, Purple Heart and nine battle stars. He joined the Regular Army in 1946.

THE YALE ROTC UNIT

A Reserve Officers' Training Corps medical unit, designed to take advantage of special facilities in preventive medicine and public health at Yale University School of Medicine, was activated at the opening of the fall term. The Yale unit, one of forty-three similar units being set up at medical schools throughout the nation, expects eventually to enroll, voluntarily, at least half of the physically-fit male students who are United States citizens. Students enrolling in the new program will be required to take a four year elective course in military medicine, unless credit is given them for military service or previous ROTC training. Since the majority of male students now registered in medical schools are veterans, most of these signing up for ROTC medical training will not begin work in military medicine until their third year of medical school. Third and fourth year medical students enrolling in the advanced course at Yale will be given special instruction in military preventive medicine, field medicine and surgery, the medical aspects of atomic warfare and other technical subjects of a military nature.

Students registering for the advanced course will be required to sign a contract agreeing to complete two years of work in military medicine and to attend an eight week period of summer training between their third and fourth year of medical school. Advanced course students in the program will be paid at the rate of $23.70 a month while in medical school and $75 a month during the summer training period. Six weeks of this summer training will be given at the Army Medical Center, Washington, D. C., and two weeks at Fort Belvoir, Va. On the successful completion of the advanced course, medical school graduates will be offered commissions as first lieutenant, Army Medical Corps, Organized Reserve.

Major Douglas Lindsey, M.C., U. S. A., who has been named assistant professor of military science and tactics at Yale, will work in close connection with the Departments of Preventive Medicine and Public Health. Major Lindsey graduated from the Yale School of Medicine, served overseas as infantry battalion surgeon with the Second Battalion 175th Infantry, 29th Division, and holds the Silver Star, Bronze Star and Purple Heart medals. In addition, Major Lindsey is assistant resident in surgery at the New Haven Hospital.

AVIATION MEDICAL EXAMINERS GRADUATE

One hundred medical officers graduated from the course for aviation medical examiners at the School of Aviation Medicine, Randolph Field, Texas, September 12. The course covering a period of nine weeks is designed to instruct medical officers in the special duties of aviation medical examiners, to indoctrinate them in flying training, and familiarize them in the coordination of such duties with other activities which they may be called on to perform. Among those graduating September 12 were Major Humberto H. Cabrera of the Mexican Army and Major Marcial Baeza of the Army of Chile. The graduation address was made by Major Gen. Howard M. Turner, commanding general of the Tenth Air Force.

ARMY AWARDS AND COMMENDATIONS

Lieutenant Colonel William G. Dunnington

The Legion of Merit has been awarded to Lieut. Col. William G. Dunnington, M. C., U. S. Army, of Cherokee, Okla. The citation read in part as follows: For exceptionally meritorious conduct in the performance of outstanding services, as commanding officer, 184th Medical Battalion, Separate, attached to XIII Corps, from Nov. 8, 1944 to May 8, 1945. He displayed outstanding professional and executive ability, initiative and good judgment in supervising the work of his battalion, which was engaged in numerous medical tasks not ordinarily undertaken by such an organization. His excellent performance and devotion to duty reflect great credit on himself and on the armed forces of the United States. Dr. Dunnington graduated from the University of Oklahoma School of Medicine in 1934 and entered the military service in September 1940.

PHYSICIANS SEPARATED FROM SERVICE

ARMY MEDICAL CORPS OFFICERS RECOMMENDED FOR/OR RELIEVED FROM ACTIVE DUTY

Alabama

Eversole, Stanton L. Jr.....Vincent
Francis, James C.....Anniston
Hare, Francis W. Jr.....Monroeville
Kennedy, James A.....Tuskegee
McLallen, Clyde D. Jr.....Birmingham
Martin, Farris J.....Montgomery
Ray, James C.....Sulligent
Wilson, Joseph D.....Birmingham

Arkansas

Hoge, Marlin B.....Ft. Smith
Hollenberg, Henry G.....Little Rock
Lutes, Lester L.....Blytheville
Noel, Elmer H.....Ft. Smith
Stainton, Robert M.....Prescott

California

Falk, Sidney M.....Fresno
Fine, Irwin A.....Los Angeles
Gray, Alan W.....Glendale
Haris, Chester S.....San Francisco
Hobson, Lewis C.....Los Angeles
Holm, Donald N.....Glendale
Hoover, Bryan R.....Los Angeles
Hunnicutt, Cecil C.....Los Angeles
McEvers, Albert E.....Los Angeles
Maloney, Vance J. Jr.....Armona
Neil, Emmett L.....Lakewood Village
Rees, Harding.....San Francisco
Rice, Harry C.....Berkeley
Riley, James A. Jr.....Sacramento
Roback, George S.....Berkeley
Smillie, Jack G.....Los Angeles
Van Nuys, Gordon P.....Berkeley
Woodward, Frank A.....Los Angeles
Woolley, LeGrand G.....San Francisco
Wycoff, Charles C.....San Francisco

Connecticut

Egan, John J.....Waterbury
Hessin, Arthur L.....Hartford
Moher, James J.....Ansonia
Morris, Felix R.....Bridgeport
Pomeroy, William H.....Windsor
Windus, Charles E.....New Haven

Illincis

Cullison, Charles W.....Lawrenceville
Donohue, John F.....Chicago
Fantel, Ernest.....Dieterich
Fingerhut, Morton H.....Chicago
Fishkin, Ben G.....Chicago
Haffly, Gilbert N.....Chicago
Hirschy, Arthur W.....Cameron
Holcomb, William I.....Kankakee
Levitt, Robert O.....Chicago
Lustgarten, Earl M.....Chicago
Mastores, Nickolas P.....Chicago
Tipshus, Alfons F.....Oak Park
Weidemann, John A.....Chicago
Williams, Robert E.....Chicago

Iowa

Fisch, Roman J.....Le Mars
Hutch, John A.....Cedar Rapids
Hyatt, Charles N.....Humeston
McKay, Richard V. Jr.....Dubuque
Reeck, Leland K.....Fort Dodge

Maryland

Fetter, Bernard F. J.....Baltimore
Herold, Paul G.....Baltimore
McDaniel, Robert W.....Baltimore
MacDonald, Charles R.....Cumberland
Middleton, William D.....Lanham
Pfeil, Edgar T. Jr.....Baltimore
Wolf, Frederick S.....Baltimore

Massachusetts

Brown, Hathorn P.....Brookline
Bruno, Francis E.....Quincy

Massachusetts—Continued

Capron, Charles W. Jr.....Boston
Hyde, Raymond W.....Dorchester
Kelly, Harry J.....Northampton
Kimmich, Robert A.....Worcester
McLean, Donald E.....Somerville
Parker, Arthur M.....Brookline
Pauley, Harvey C.....Belmont
Shushanian, Arthur A.....Watertown
Slowick, Joseph E.....Palmer
Sozanski, Julius C.....Peabody

Michigan

Eades, Charles C.....Detroit
Feldman, Milton D.....Detroit
Ferrara, Louis V.....Detroit
Foley, Arthur L. II.....Alpena
Harkaway, Roman W.....Hamtramck
Houten, Charles T.....Paw Paw
Kibke, Robert S.....Gaylord
Kroll, Bernard M.....Detroit
McCowen, Earl A. Jr.....Detroit
Mercer, Robert D.....Dearborn
Root, Samuel W.....Ann Arbor
Wiener, Morton J.....Lansing
Williams, John P.....Detroit
Williamson, Edwin M.....Detroit

Minnesota

Cole, Richard L.....Denton
Dahleen, Henry C.....Rochester
Flynn, Louis L.....So. St. Paul
Helland, Norman J.....St. James
Johnson, Raymond A.....Winthrop
Koskela, Albert L.....Keewatin
Krezowski, Thomas K.....Minneapolis
Petersen, Donald H.....Minneapolis
Rider, Ernest B.....Minneapolis
Shea, Andrew W.....Minneapolis
Vadheim, Robert H.....Tyler

Montana

Levitt, Louis.....Worden
Seifert, Paul J.....Bozeman

Nevada

Hood, Dwight L.....Reno
McDaniel, John R. Jr.....Las Vegas

New Jersey

Crunden, Allan B. Jr.....Montclair
Fenimore, Edward D.....Jersey City
Fifer, William T.....Bayonne
Finby, Nathaniel.....Newark
Fink, Stanley J.....Roselle
Halstead, Frank E.....Arlington
Hyde, Leroy.....Brooklyn
Lang, Edwin F. Jr.....Short Hills
Marucci, Horace D.....Orange
Minck, Peter Jr.....N. Bergen
Shapiro, Saul J.....Union City
Sherman, Arthur E.....Maplewood
Shill, Benjamin.....Newark
Williams, Leonard D.....Plainfield
Winfield, Irwin W.....Highland Park

New Mexico

McBee, Alexander V.....Hobbs

New York

Barge, Henry F.....West Chazy
Behrer, Arnold M. Jr.....Garden City
Bisaccio, Joseph R.....Corona
Brinn, Harold C.....New York
Burke, John C.....Troy
Cantore, Anthony J.....Brooklyn
Cohn, Hans J.....Woodstock
Deuel, Ray E. Jr.....Syracuse
Diefendorf, Herbert W.....Glens Falls
Donoghue, Francis E.....Brooklyn
Eller, William D.....Bronx
Elson, George Y.....Brooklyn
Falco, Paul R.....Brooklyn

New York—Continued

Fankhauser, Arthur.....Brooklyn
Fenning, Frederick R.....New York
Fitzgerald, Joseph E.....Queens
Fitzgerald, William J.....Albany
Flank, Maxwell D.....Brooklyn
Folb, Henry.....Brooklyn
Fowler, Edmund P. Jr.....New York
Fowler, John D.....Rochester
Fox, Leonard P.....Brooklyn
Fraser, Robert W.....New York
Freedman, Alfred M.....Albany
Gallas, Digby.....Brooklyn
Gardner, James F.....Rochester
Granwell, Leslie J.....New York
Hicks, Andrew R.....Mount Vernon
Hyman, Richard M.....New York
Klein, Harold.....Brooklyn
Lane, Theron I.....Yorktown Heights
Margles, Elliott C.....Brooklyn
Masur, Charles J.....New York
Segenreich, Albert.....New York
Shapiro, Richard D.....Ozone Park
Szymczyk, Casimir J.....Amsterdam
Taglianetti, Edmund V.....Brooklyn
Weingeist, Samson.....Long Island
Wessler, Gerald.....Bronx

Ohio

Chaboudy, Louis R.....Portsmouth
De Vaux, William D.....Cincinnati
Dix, George C.....Cleveland
Ellis, Samuel C.....Xenia
Epstein, Isadore S.....Cleveland
Feldman, Raymond.....Cleveland
Felts, Edwin J.....Cleveland
Fisher, Jerome.....Columbus
Fishman, Melvin B.....Cincinnati
Freeman, Edson A. Jr.....Akron
Fulton, Richard L.....Dayton
Harco, Clarence E.....Conneaut
Herzberg, Mortimer Jr.....Cincinnati
Leiter, Eugene R. K.....Cleveland
Link, Francis C.....Springfield
Lohrey, Ralph C.....Cleveland
Longaker, Paul E.....Conneaut
McClellan, Harvey B.....Cleveland
McConnor, Richard J.....Cleveland
Masaryk, Joseph A.....Burghill
Master, John R.....Cleveland
Moberly, John W.....Hillsboro
Motto, Rocco L.....East Cleveland
Roska, Charles J.....Canton
Rothring, Howard E.....Cincinnati
Sanders, Howard E.....Springfield
Sigler, John W.....Chillicothe
Smead, Robert L.....Toledo
Smedal, Erling A.....Mansfield
Smith, Philip W.....Marion
Wichowski, Walter A.....Toledo
Widzer, Ben.....Cleveland
Williard, Nicholas E.....Tiffin
Wolf, Robert E.....Tuscarawas

Texas

Hart, Walter F.....Tyler
Keates, Albert E. Jr.....Beaumont
Kirby, Thomas J. Jr.....New Willard
Kirkpatrick, Robert H.....San Antonio
Schultz, Leon.....Galveston
Shaw, Guy G. Jr.....Kaufman
Shelby, David M.....San Diego
Watkins, Walter C.....Amarillo
Windrow, Nuel C. Jr.....Houston
Wolf, William M. Jr.....San Antonio

Washington

Curtis, Clyde A.....Seattle
Douglass, Charles W.....Wenatchee
Mitchell, Thomas J.....Spokane
Mosiman, Roscoe S.....Seattle
Smeall, Thomas A.....Tacoma
Williams, William E.....Auburn

NAVY

JOINT ARMY-NAVY MEDICAL SUPPLY CATALOGUE

The new joint Army-Navy medical supply catalogue which was begun in 1945 has finally been issued. Every medical and hospital facility of the Army and Navy will receive a copy when distribution is complete. This large volume has been hailed by the Secretary of Defense and the two Surgeon Generals as an invaluable instrument of increased efficiency and economy and an important milestone in the logistics of military medicine. The nearly 8,000 items listed range from such inexpensive expendable articles as tongue depressors to large pieces of equipment which costs thousands of dollars. The items in the book are divided into fourteen classes, among which are 5,026 JAN items which are adaptable for both Army and Navy use; the remainder of the listings are on "limited service" supply, which means that their use is being discontinued. The catalogue is so fully indexed that an article can be located by its name or number in a few moments. In recognition of the simplified thoroughness of the new catalogue the Veterans Administration and the U. S. Public Health Service have indicated that they will adopt a similar style. The task of composing this thick volume was launched under former Surgeons General Norman T. Kirk, U. S. Army, and Vice Admiral Ross T. McIntire (MC), U. S. N. (retired). The ultimate result may be a single federal medical supply catalogue providing special designation for items used by only one service, comparable to the Army-only and Navy-only designation in the present volume.

SAFETY AWARDS

The Secretary of the Navy Award for Safety has been awarded by former Secretary of the Navy James Forrestal to the U. S. Naval Hospital and the Naval Medical Supply Depot, Oakland, Calif., for a reduction in the accident rate of 54 per cent for the hospital and 39 per cent for the depot. Notice of this award to the U. S. Naval Hospital, Annapolis, Md., appeared in THE JOURNAL, September 13, page 103.

NAVY AWARDS AND COMMENDATIONS

Commander John L. Tullis

The Navy Commendation Ribbon has been awarded to Comdr. John L. Tullis (MC), U.S.N. The citation read as follows: For meritorious service in connection with the Naval Medical Research Section of Operation Crossroads. He competently and efficiently carried out the pathologic work of the section to obtain information of the utmost value in assaying the effects of atomic bomb radiations on animals. His industry and skill have set a splendid example for those working under him. As division officer he performed his duties in a highly capable manner, and as pathologist he demonstrated an unusual degree of ability, which contributed to the successful conduct of the Atomic Bomb Tests. Dr. Tullis graduated from Columbia University College of Physicians and Surgeons, New York, in 1938 and entered the Regular Navy Medical Corps in 1943.

VETERANS ADMINISTRATION

ESTIMATE OF NUMBER OF VETERANS ALIVE IN THE YEAR 2000

The Veterans Administration has made a projection to estimate what its administrative and operating requirements will be in the future. The projection begins with the potential World War II population of 16,051,000 as of July 25, 1947. This number includes those released by the armed forces who are still living and those yet to be released as veterans of World War II. The average age of this group on that date was 28.6 years. The Veterans Administration computes that 3,400,000 World War II veterans will be alive in the year 2000. The projection ends with the year 2030, when it is expected that less than a thousand World War II veterans will be alive, at an average age of 104 years. The peak of medical care for World War II veterans is expected to be in 1975 when it is expected that 12,700,000 will be living at the average age of 57 years.

The number of World War I veterans still living as of June 30, 1947 was 3,727,000, and their average age then was 57 years.

HOSPITAL NEWS

Eleven hundred additional temporary beds will be provided in Downey Hospital near North Chicago, Ill., through remodeling of buildings and facilities built during the expansion of the Great Lakes Naval Training Station in 1943 on ground adjoining the Veterans Administration facility. Six hundred of these beds will be for tuberculosis cases and 300 for neuropsychiatric cases. It is estimated that four months will be required to remodel the buildings and obtain the necessary additions to the hospital staff.

CONTRACT FOR HOSPITAL IN BROOKLYN

The War Department announces that the Corps of Engineers has awarded the contract for the construction of the main building of the 1,000 bed hospital at Fort Hamilton, Brooklyn, for $14,700,000, which is $2,000,000 less than the original low bid. The saving was brought about by deleting the auditorium and making various other changes in the plans.

PRIVATE HOSPITAL CARE

According to the *New York World Telegram*, August 26, private hospital care for New York veterans with service connected disabilities will be discontinued except in cases of emergencies. Many veterans now being treated in private hospitals for tuberculosis and neuropsychiatric disorders will be transferred to federal hospitals, depending on the availability of beds and in a manner consistent with sound medical judgment. This move is being made in the interest of economy.

PERSONAL

Dr. Henry I. Berman, Pikeville, Ky., has accepted a position in the urology department of the Veterans Administration Hospital at Dayton, Ohio.

Dr. Francis J. Phillips has been assigned as chief, thoracic surgery, at the Veterans Hospital, Temple, Texas, instead of surgical chief. Dr. Bromley S. Freeman is chief of the surgical service at this hospital.

Dr. Paul C. Clark has joined the neuropsychiatric division of the staff of the veteran's hospital at St. Petersburg, Fla. Dr. Clark was for several years on the staff of the Columbus (Ohio) State Hospital and clinical director and assistant superintendent at the Huntington State Hospital in West Virginia.

Dr. Mark W. Garry, a graduate of Marquette University School of Medicine, Milwaukee, has accepted the position of chief of medical services for the Veterans Administration Hospital at Wood, Wis.

Dr. Louis G. Welt, clinical instructor of medicine at Yale University School of Medicine, New Haven, and practitioner of medicine in Connecticut since 1939, has been appointed to a medical research post with the Veterans Administration in Washington, D. C.

Dr. George A. Leonard, formerly of Waterbury, Conn., has been appointed chief medical officer of the VA regional office in New Orleans.

Ruth Addams, New York, has been appointed to the Veterans Administration central office nursing staff as a specialist in community nursing to work with the Red Cross, and other local groups, in seeing that adequate nursing care is available for disabled veterans in their communities and homes after their discharge from Veterans Administration hospitals.

Dr. Oscar Auerbach, chief, laboratory services, Halloran Veterans Administration Hospital, New York, recently returned from a month's tour of duty with the Mexican Society for the Study of Tuberculosis. Dr. Auerbach conducted a four weeks' course during August in pathology in chest diseases at the invitation of the president of the society.

PUBLIC HEALTH SERVICE

RESEARCH FELLOWSHIPS AVAILABLE

The Surgeon General, U. S. Public Health Service, has been given authority to establish and maintain research fellowships which are intended to promote training and development of investigators in the field of medicine and related sciences. The following types of research fellowships are to be awarded:

1. A predoctorate fellowship is available to qualified applicants who have a Bachelor's Degree. The stipend for successful applicants without dependents is $1,200 and for those with dependents $1,600 per annum. The tuition fee is paid by the Public Health Service. These fellowships are also granted to medical students who have finished one or two years of their medical course and contemplate a career of research and who wish to spend two or three additional years in a basic science before completing their studies toward their M.D. degree.

2. A predoctorate fellowship is available to qualified applicants holding a Master's Degree or its equivalent and carries a stipend, in addition to tuition, of $1,600 or $2,000 for persons without or with dependents, respectively.

3. A postdoctorate fellowship is available to qualified persons holding a Doctor's Degree in medicine or related fields. It carries a stipend of $3,600 for those with and $3,000 for those without dependents; it does not provide tuition fees. An increase of $300 each year is granted to those who are reappointed.

4. Special research fellowships are awarded to applicants who are qualified for a postdoctorate fellowship and who in addition have demonstrated outstanding ability or have special training for a specific problem. The stipened is determined in each individual case.

These fellowships permit vacations in accordance with the rules of the institution where the work is being done but not to exceed one month during the term of the fellowship. Progress reports are required at the end of eight months for fellows who contemplate reappointment and at the end of the fellowship from all others. Fellows are permitted to carry on not more than one hour of teaching or lecture or three hours of laboratory instruction per week during one semester only. Although fellowships are awarded about every three months, the date of beginning work can be set at any time to suit the convenience of the applicant or institution.

Forms for application for a research fellowship may be obtained from the Division of Research Grants and Fellowships, National Institute of Health, Bethesda 14, Md. The application must be supported by transcripts of scholastic records and by letters of recommendations from persons named by the applicant in the completed form. A list of all research projects which the U. S. Public Health Service supported from Jan. 1, 1946 to Aug. 31, 1947 shows a total of $10,214,174 made available to investigators. The largest number of projects (114) were in the field of cancer, the second largest (52) in physiology and the third (49) in biochemistry and nutrition. The Public Health Service also released the names of all the investigators, their projects, the institutions and the amount of money granted in each case.

NEW MEMBERS OF MENTAL HEALTH COUNCIL

The U. S. Public Health Service announces the appointment of two new members of the National Advisory Mental Health Council: Dr. Alan Gregg, Rockefeller Foundation, New York, and Dr. Karl M. Bowman, San Francisco, to succeed Dr. Frank F. Tallman of Columbus, Ohio, and Dr. George S. Stevenson, Redbank, N. J., who on the expiration of their terms on the Council were appointed consultants in mental health to the Public Health Service.

The following have been appointed to the headquarters staff of the mental hygiene division of the Public Health Service: Dr. Raymond V. Bowers, formerly with Selective Service as chief of research; John C. Eberhard, formerly on the staff of the psychology division of Northwestern University, Chicago; Miss Esther A. Garrison, a nurse officer in the Public Health Service, and Miss Pearl Shalit, formerly with the Family Nursing Service, St. Paul.

MISCELLANEOUS

THE ISOTOPE DISTRIBUTION PROGRAM

The U. S. Atomic Energy Commission, Isotope Branch, reports in *Science* that during the first year of distribution, ending July 31, 1947, pile-produced radioisotopes were shipped to more than one hundred and sixty institutions and organizations located in thirty-one states and in the territory of Hawaii. At the head of the list of recipients are medical institutions and hospitals, followed by educational institutions for use in research; industrial and private organizations for use in research; then public and private nonprofit institutions other than educational. About sixty different radioisotopes were shipped—a major portion of available kinds.

Hundreds of different uses are being made of distributed radioisotopes, but outweighing the others in number and importance at present are the tracer investigations (including medical diagnosis) and medical therapy. Investigations have been carried on in the fields of agriculture, plant physiology, industrial research, chemistry, bacteriology and metallurgy. In chemistry the principal emphasis has been on the use of labeled molecules in the study of reaction and exchange mechanisms. Physicists have used radioisotopes in their effort to arrive at more accurate measurements of disintegration patterns.

Great improvement was made during the year in the routine production of many items at the Clinton Laboratories, Oak Ridge, Tenn. Production of the majority of items is now adequate to meet the legitimate demands of all users who can handle the material effectively and safely.

Research workers may now secure service irradiations of their own materials (suitable for exposure in the Clinton pile). The Argonne National Laboratory, Chicago, has also recently undertaken to perform certain service irradiations for qualified investigators by means of the Argonne heavy-water pile. Improved methods of producing radioactive carbon (C^{14}) have permitted a reduction in the cost of this extremely important isotope from $367 to $50 per millicurie.

Information on health protection, the commission reports, is one of the most frequent requests received in connection with this program, and several circulars on health protection are available. Details concerning the availability and procurement of isotopes and related information may be obtained by writing the Atomic Energy Commission, P. O. box E, Oak Ridge, Tenn.

Medical News

(Physicians will confer a favor by sending for this department items of news of general interest: such as relate to society activities, new hospitals, education and public health. Programs should be received at least two weeks before the date of meeting.)

CALIFORNIA

Graduate Assembly at San Diego.—The staff of the San Diego County General Hospital has arranged a graduate assembly for October 6-8, to which all physicians are invited. No charge will be made for attendance. Physicians who will lead the discussion include:

Thomas J. Dry, Rochester, Minn.
Rubin Flocks, professor of genitourinary surgery, State University of Iowa College of Medicine, Iowa City.
Frank R. Lock, professor of obstetrics and gynecology, Bowman-Gray Medical School, Winston-Salem, N. C.
Edward B. Shaw, associate clinical professor of pediatrics, University of California Medical School, Berkeley-San Francisco.
John B. De C. M. Saunders, professor of anatomy, University of California Medical School.
Le Roy C. Abbott, professor of orthopedic surgery, University of California Medical School.
John R. Paxton, assistant clinical professor of surgery, University of Southern California School of Medicine, Los Angeles.

Morning sessions will be held in the San Diego County General Hospital and afternoon sessions at the U. S. Naval Hospital.

Eye Laboratory Established in Los Angeles.—The Estelle Doheny Eye Foundation announces the establishment of an Eye Laboratory at St. Vincent's Hospital, Los Angeles. The immediate functions of the laboratory are (1) to serve for the diagnosis and registration of pathologic specimens, with preparation of gross specimens and microscopic slides for ophthalmologists submitting specimens, and for building up a museum of Eye Pathology; (2) to serve as a bacteriologic laboratory wherein diagnostic scrapings, smears and cultures can be studied, animal inoculations made, and the sensitivity of organisms to various drugs and antibiotics determined; (3) to provide facilities for fundus, gross and slit lamp photography and to maintain a library of photographs and motion pictures for teaching ophthalmology; (4) to provide an "Eye Bank" for Southern California, with registry of potential donors and recipients, and (5) to distribute and loan certain drugs and equipment for radiation therapy of the eye for use outside the laboratory. Dr. A. Ray Irvine, professor of ophthalmology, University of Southern California School of Medicine, Los Angeles, will act as chairman of the original board. On the advisory board will be Drs. Alan C. Woods, professor and director of the department of ophthalmology at Johns Hopkins Medical School, Baltimore; Cecil S. O'Brien, head of the department of ophthalmology at Iowa Medical School, and Phillips Thygeson, former professor of ophthalmology at Columbia University College of Physicians and Surgeons, New York, and now associate professor at the University of California Medical School, Berkeley-San Francisco. It is contemplated that the advisory board will also include business and professional leaders as well as representatives from the eye departments of Los Angeles hospitals, medical schools and the eye section of the Los Angeles County Medical Society. Dr. Peter Soudakoff, Los Angeles, formerly associate professor of ophthalmology at the Peking Union Medical College, Peiping, China, will serve as full time pathologist at the laboratory. It is anticipated that research associates, granted fellowships in basic ophthalmic research by the foundation, will be added to the laboratory staff from time to time. In creating this charitable foundation, dedicated to the conservation and restoration of sight, Mrs. Edward Laurence Doheny has been careful to insure a flexibility of organization to take care of immediate practical needs and to provide for the development of research in ophthalmology.

DISTRICT OF COLUMBIA

Orientation Program.—George Washington University School of Medicine inaugurated a two week orientation program for members of the 1947 freshman class beginning September 15. The program was designed to acquaint students with medical terminology and to show them the relationship of medicine with physics, biology, sociology and chemistry. Lectures were also given on the evaluation of scientific evidence and basic sciences in medicine. Discussions followed each address.

Personals.—George Washington University has appointed Dr. Luther Sheldon Jr., rear admiral, U. S. N., retired, as associate university physician, thereby opening campus medical facilities for students daily from 9 a. m. to 5 p. m. Dr. Elizabeth S. Kahler, who has been associate university physician for several years, will also be on duty.——Dr. William W. Stanbro has been appointed chief roentgenologist at George Washington University Hospital and assistant professor of radiology at the University School of Medicine. Dr. Stanbro has just completed residence on a fellowship at the Mallinckrodt Institute of Radiology, Washington University School of Medicine, St. Louis, Mo., where he also received his degree in medicine.

ILLINOIS

Personal.—Dr. James H. Davis, Carlinville, has received a fifty year certificate from the Macoupin County Medical Society. Dr. Davis, a graduate of Northwestern University Medical School, Chicago, 1897, has spent most of his fifty years in practice in Carlinville.

Joint Meeting of Tuberculosis Societies.—A joint meeting of the Illinois chapters of the American Trudeau Society and the American College of Chest Physicians was held at the Abraham Lincoln Hotel, Springfield, October 2 at 2 p.m. Dr. Charles K. Petter, Waukegan, spoke on "The Need for Periodic X-Ray Examination of Adult Chests"; Dr. Darrell H. Trumpe, Springfield, "Role of Bronchoscopy in Diseases of the Chest"; Dr. George H. Vernon, Springfield, "Our Experience with Streptomycin and Summary of Present Status," and Dr. Jesse A. Stocker, Springfield, "Limitations of Collapse Procedures." At the regular meeting of the Sangamon County Medical Society that evening Dr. J. Arthur Myers, University of Minnesota Medical School, Minneapolis, spoke on "Tuberculosis in General Practice and the Specialties."

Lectures Arranged by the State Society.—The Scientific Service Committee of the Illinois State Medical Society has scheduled the following lectures:

October 9—Six County Medical Society in Anna State Hospital, Anna, Dr. Louis R. Limarzi, Chicago, "Common Blood Disorders in General Practice," and Dr. Frederic A. Gibbs, Chicago, "Epilepsy." Will-Grundy County Medical Society, Joliet, Dr. Leon O. Jacobson, Chicago, "Radioactive Therapy."

October 16—Logan County Medical Society, Lincoln, Dr. E. Harold Ennis, Springfield, "Rh Factor."

November 20—Logan County Medical Society, Dr. F. Garm Norbury, Jacksonville, "Psychosomatic Medicine."

The following Chicago physicians are lecturing to Parent-Teacher Associations under the auspices of the Educational Committee of the Illinois State Medical Society:

October 9—Dr. Paul Starcevich, "Various Aspects of Nutrition," at the Matteson Public School, Matteson.

October 10—Dr. Morris Braude, "Mental Hygiene," at the Gross School, Brookfield.

Chicago

Society News.—The Chicago Society of Allergy at its annual meeting elected Drs. Theodore B. Bernstein president, Edward G. Tatge president-elect and Morris A. Kaplan secretary-treasurer.——At its latest meeting the Chicago Orthopaedic Society elected Drs. Harold A. Sofield president, John R. Norcross president-elect and Manley A. Page secretary-treasurer.

Assistant Medical Director of University Hospitals.—Dr. Myron C. Benford, Chicago, head of the outpatient department of the University of Illinois hospitals since 1942, has been promoted to assistant medical director, to assist Dr. John B. Youmans, dean of the college of medicine and medical director of the hospitals. Dr. Benford is a 1935 graduate of the university's College of Medicine and was appointed to the faculty in 1937. He later served as assistant superintendent of the hospitals.

Dr. Bailey Promoted to Distinguished Professor.—Dr. Percival Bailey, who has been on the faculty of the University of Illinois since 1929, has been promoted to the rank of distinguished professor of neurology and neurologic surgery. Dr. Bailey received his M.D. degree from Northwestern University, 1918. He has conducted research in neurology, neurophysiology, pathology and surgery. During the last five years he has conducted research on the organization of superficial layers of the brain. He has also been a member of the faculty at Harvard Medical School, Boston, Northwestern Medical School, and the University of Chicago School of Medicine.

Share Fellowship in Cancer Research.—A grant of $2,000 for a fellowship in cancer research in the field of pathology has been made to the Northwestern University Medical School by the Illinois Federation of Women's Clubs. The fellowship will be shared by Drs. Joseph T. Chung and Thomas J. Madden, research men working under the direction of Dr. William B. Wartman, Morrison professor of pathology and chairman of the department. Dr. Chung's research is centered in the application of a cell-staining method for the early diagnosis of cancer. Dr. Madden, working in the field of biochemistry, is studying enzymes and their relation to malignant neoplasms.

INDIANA

College Honors Dr. Stanley.—Physicians and other scientists gathered at Earlham College, Richmond, September 19, as a part of the school centennial celebration, to honor Wendel M. Stanley, Ph.D., Princeton, N. J., of the Rockefeller Institute of Medical Research. Dr. Stanley gave an address in Carpenter Hall on studies on purified influenza virus. He is a graduate of Earlham College and a winner of the Nobel prize for "achievement in preparing enzymes and virus proteins in pure form."

State Society to Award Scholarships to Nurses.—The council of the Indiana State Medical Association in July took action to give scholarships of $200 each to six girls for training in any one of the twenty-eight accredited nursing schools of the state. It also decided to award medals in the name of the association to the three students with the highest grades in each graduating class of the Indiana University School of Medicine, Bloomington-Indianapolis. Six $500 medical school scholarships were awarded last January.

LOUISIANA

Society News.—At the annual meeting of the New Orleans Gynecological and Obstetrical Society July 1 the following officers were elected: Dr. Earl C. Smith, president; Dr. Woodward D. Beacham, president-elect; Dr. John S. Herring, secretary, and Dr. Harry Meyer, treasurer.

Academy of General Practice.—At the organization meeting of the American Academy of General Practice of New Orleans, held August 20, Drs. Joseph C. Menendez was elected president, Esmond A. Fatter, vice president, and Robert E. Gillaspie, secretary-treasurer. Dr. Jason P. Sanders, Shreveport, president of the American Academy of General Practice of Louisiana and a representative on the board of directors of the national organization, addressed the group.

Louisiana Faculty Appointments.—The Louisiana State University School of Medicine, New Orleans, has announced the following appointments: Drs. Harry E. Dascomb, instructor in medicine; Robert M. Waters, instructor in surgery; John J. Blasko, clinical instructor in neuropsychiatry; Louis Raider, New York, clinical instructor in radiology; Simon V. Ward Jr., clinical instructor in obstetrics and gynecology; Harold S. Gamble, assistant in anatomy; John D. Krafchuk, assistant in microbiology; James T. McQuitty, clinical assistant in surgery, and Robert D. Bone, clinical assistant in medicine.

MAINE

Elected to National Board.—Dr. Adam P. Leighton, Portland, was unanimously elected to the National Board of Medical Examiners recently at its meeting. He succeeds the late Dr. James D. Osborn, Frederick, Okla., who died February 7, and whose term would have expired in 1949.

MARYLAND

Semiannual Meeting of State Association.—The Medical and Chirurgical Faculty of Maryland will hold its semiannual meeting at the auditorium, County Office Building, Easton, October 9 at 10:30 a.m. At the general meeting beginning at 2:30 p.m. Dr. George W. Thorn, Hersey professor of the theory and practice of physics, Harvard University Medical School, Boston, will speak on "Treatment of Renal Insufficiency."

NEBRASKA

University Appointments.—Dr. Pliney Allen has been appointed assistant professor of pathology at the University of Nebraska College of Medicine, Omaha, and has accepted the position of pathologist at the Immanuel Deaconess Institute in Omaha. A graduate of Harvard Medical School, Boston, he has taken training at the Mayo Foundation and has been associated with Charity Hospital of Louisiana and the Louisiana State University School of Medicine, New Orleans, and the Joseph H. Pratt Diagnostic Hospital in Boston. Robert M. Allen, Ph.D., has been appointed assistant professor of bacteriology.——Dr. James P. Tollman has been appointed chairman of the department of clinical pathology and bacteriology at the University of Nebraska College of Medicine, Omaha. He has been associated with the institution almost continuously since his graduation in medicine there in 1929. Dr. John R. Schenken, associate professor of pathology, has been appointed professor of pathology and acting chairman of the department of gross and micros pathology. He is a graduate of the State University of Iowa College of Medicine, Iowa City, 1928, and was professor and head of the department of pathology and bacteriology at Louisiana State University School of Medicine, New Orleans, 1939-1945, when he came to the University of Nebraska College of Medicine.

NEW YORK

Mental Deficiency Section Meeting.—The northeastern section of the American Association on Mental Deficiency is holding a meeting at the Wassaic State School, Wassaic, N. Y., October 18. During the morning hours the school will be open for inspection. After luncheon the following papers will be given and discussed: Drs. Ernest S. Steblen and Joseph E. Rosenfeld, "An Analysis of the Relationship of the Moron Group to State School Training"; Patrona F. Morgan, "Social Service in the Realm of Mental Deficiency," and Percy H. Larrabee, O.T.R., "Occupational Therapy with Mental Defectives."

Conference on Radioisotopes.—Brookhaven National Laboratory, Upton, will hold a conference on the use of radioisotopes in medical and biologic research, October 16-18. Topics include: "Legal Aspects in Use of Radioactive Materials," "Protective Measures for Personnel," "Protective Measures for Public Health," "Procedures Used in Examination of Individuals Exposed to Radioactive Materials," "Procurement of Isotopes," "Shipping of Isotopes," "Handling of Radioactive Materials" and "Disposal of Radioactive Waste Materials." Those interested in attending should communicate with Miss Ellen Matteson, Secretary, Conference Committee, Brookhaven National Laboratory, Upton.

Lectures for County Societies.—The Medical Society of the State of New York in cooperation with the New York State Department of Health has arranged a program for the Schenectady County Medical Society for October 7 at 8:30 p.m. in the library at Ellis Hospital, Schenectady. Dr. John R. Cobb, assistant orthopedic surgeon, Hospital for Special Surgery, New York, and Thomas I. Hoen, professor of neurosurgery, New York Medical College Flower and Fifth Avenue Hospitals, New York, will take part in a symposium on low back pain. The Seneca County Medical Society is to hear Dr. Richard S. Farr, professor of orthopedic surgery, Syracuse University College of Medicine, Syracuse, speak on "The Treatment of Fractures by the General Practitioner" on October 16 at 2 p.m. at the Willard State Hospital, Willard.

New York City

Long Island College to Confer Doctor of Medical Science.—The Long Island College of Medicine, Brooklyn, has been authorized to confer the degree of Doctor of Medical Science by the state board of regents, following the expansion of teaching activities to include graduate training in psychiatry. Graduate courses in other fields will be organized as the necessary space and instructors become available. The college has heretofore sponsored only a part-time program of graduate training. The three year graduate teaching program is under the direction of Dr. Howard W. Potter, professor of psychiatry.

Dedicate Building for School of Nutrition.—The new home of the school of nutrition at Cornell University will be dedicated October 10. Speakers representing the government, health and science groups, the farmer and the university, will discuss "Nutrition—A Key to Human Welfare." Among the speakers will be Governor Thomas E. Dewey; Congressman Clifford R. Hope of Kansas, chairman, congressional agriculture committee; Dr. William H. Sebrell Jr., U. S. Public Health Service, Bethesda, Md.; Frank M. Smith, Springfield Center, N. Y., chairman, New York State Conference Board of Farm Organizations; Dr. Leonard A. Maynard, director of the School of Nutrition, and Neal D. Becker, New York, chairman of the Cornell University Board of Trustees. The new building will provide much larger facilities for teaching and research for the school of nutrition, which was established in 1941. The building is named in honor of Professor Elmer S. Savage, a member of the faculty for thirty-five years until his death in 1943.

VIRGINIA

The Hundredth Annual Meeting of State Society.—The Medical Society of Virginia will hold its hundredth annual meeting October 13-15 at Roanoke, under the presidency of Dr. William L. Powell. Besides numerous members who will speak on the scientific program, the guest speakers include:

Richard H. Shryock, Ph.D., Philadelphia, Progress of Medicine in America in the Past One Hundred Years.
W. Halsey Barker, Baltimore, Gastro-Intestinal Symptoms Occurring in Disorders Located Outside of the Gastro-Intestinal Tract.
Frederick A. Coller, Ann Arbor, Mich., Peripheral Diseases and the Newer Concepts of Their Management.
Frank E. Smith Jr., New York, The Doctor Assumes a Moral Responsibility.

Entertainment includes a birthday party of the one hundredth meeting Monday evening and a banquet Tuesday at 7:15 p.m. followed by a dance. The Alumni Association will have a dinner meeting Monday at 6 p.m., and the breakfast of the American Academy of General Practice, Virginia Section will be Tuesday morning at 8 o'clock. Special society luncheons are scheduled for Tuesday at 1:15 p.m. The Woman's Auxiliary will meet October 14-15.

WEST VIRGINIA

The Loss of Containers for Laboratory Specimens.—A regulation adopted at a recent meeting of the public health council prohibits the use of containers provided by the West Virginia state hygienic laboratory for purposes other than sending specimens for examination and diagnosis of diseases to that laboratory. The regulation is effective October 1. The annual loss of containers has long been a serious problem, and drastic steps had to be taken lest the laboratory be compelled to discontinue furnishing this service. The loss to the laboratory last year amounted to about $12,000 because of the failure to return containers, which are mailed without charge to physicians, hospitals and public health agencies throughout the state.

Health Departments Merge.—The merger of the Kanawha County health department with the health department of the city of Charleston was completed July 1. The consolidation was effected under the provisions of a bill passed by the legislature at the regular session early in 1947. Merger of the city and county health units has long been advocated by the West Virginia State Medical Association. The new department will be under the supervision of a board of health. Appropriation for the expenses of the new unit for the fiscal year ending June 30, 1948, amounts to $64,000, the city and county each having appropriated one half that amount. Present facilities in the city hall and court house will be used until new quarters can be provided.

GENERAL

Foundation Changes Name.—The name of the National Research Foundation for Eugenic Alleviation of Sterility, Inc. has been amended in accordance with the law and has been changed to National Research Foundation for Fertility, Inc., according to the executive secretary, Dr. Alfred Koerner, New York.

Dr. Harper Given Pediatric Award.—Dr. Paul S. Harper, Fairfield, Conn., received the Mead Johnson pediatric award at the annual meeting of the Academy of Pediatrics in Pittsburgh in May. The award was presented for work on "malaria and other insect borne diseases in the South Pacific" carried on while in the military service.

American Institute of Physics.—Mr. Cleveland Norcross, Washington, D. C., at present executive secretary of the Office of Scientific Research and Development, has been appointed assistant director of the American Institute of Physics, which is a federation of the American Physical Society, the Optical Society of America, the Acoustical Society of America, the American Association of Physics Teachers and the Society of Rheology.

American Board of Obstetrics and Gynecology.—The next written examination (Part I) for all candidates will be held in various cities of the United States and Canada on Friday, Feb. 6, 1948 at 2 p.m. Candidates who successfully complete the Part I examination proceed automatically to the Part II examination held later in the year. A number of changes in regulations and requirements were put into effect at the last annual meeting of the Board in Pittsburgh, June 1-7 (THE JOURNAL, July 5, page 910). Applications are now being received for the 1948 examinations. The closing date is Nov. 1, 1947. For application blanks address Paul Titus, M.D., Secretary, 1015 Highland Building, Pittsburgh 6, Pa.

Study Atomic Bomb Survivors.—The Atomic Energy Commission together with the National Research Council will undertake a long range study of the survivors of the atomic bomb attacks on Hiroshima and Nagasaki, to be financed by the commission and directed by the council's committee on atomic casualties, organized recently as a result of a directive issued by President Truman. Dr. Thomas M. Rivers, Rockefeller Institute for Medical Research, was appointed chairman of the committee, whose members include a number of the country's leading authorities on the effects of radiation. The investigations will attempt to determine the effect of atomic radiation on the blood cells, on the physical growth of children, on the mechanisms of heredity and on the development of various pathologic conditions including the formation of massive scar tissue. The commission said that the program will be carried out in Japan under American physicians with Japanese doctors and scientists also taking part. The study of genetics and heredity may continue over a period of years.

Nurse Receives Medal for Merit.—At a press conference in the Social Security Building, Washington, D. C., September 17, the Surgeon General, U. S. Public Health Service, presented the medal for merit to Mrs. Elmira Bears, Bronxville, N. Y., executive secretary, national nursing council for war service, 1941-1947, in recognition of her contribution in the war effort of the United States. She is the third woman in the history of the nation to be so honored. She has served as nurse adviser of the United States delegation to the World Health Conference, led in the development by the National Nursing Council of a pattern for evaluation and filling nursing needs, was active in establishing the Cadet Nurse Corps in the U. S. Public Health Service and has led in developing a unified program for meeting America's postwar nursing service needs.

The Lasker Awards for 1947.—Dr. Thomas Parran, Surgeon General, U. S. Public Health Service, will receive a special Lasker award of $2,500 and a gold replica of the classical Winged Victory of Samothrace, symbolizing victory over disease and death. He is being cited for his approach to the control of venereal disease which has brought about a decreasing death rate. Individual Lasker Awards for scientific research, to include $1,000 and a gold statuette, will be presented to Dr. Oswald T. Avery, New York, Rockefeller Institute for Medical Research, for studies on the antigenic constitution of bacteria, particularly the pneumococcus; Dr. Thomas Francis Jr., University of Michigan School of Public Health, Ann Arbor, for his contribution to the knowledge of influenza; Dr. Homer W. Smith, associate professor of surgery, New York University College of Medicine, New York, for studies in cardiovascular and renal physiology, and Dr. Alice Hamilton, Hadlyme, Conn., for her administrative achievement in the prevention of occupational diseases. The two group winners, each to receive a silver replica of the statuette, are the British Ministries of Food and Health for its war-induced program of food distribution in Great Britain, resulting in the improved public health standards there, and the United States Committee on Joint Causes of Death for its method of classification of disease, injuries and causes of death on a worldwide scale, facilitating the exchange of information on health and medicine between the countries of the world. The awards will be formally presented October 9, at the annual meeting of the American Public Health Association in Atlantic City, N. J. The awards were presented to the association by the Albert and Mary Lasker Foundation last year for the first time. The winners were selected from a panel of one hundred eighteen candidates by an awards committee, of which Dr. George Baehr, president of the New York Academy of Medicine, was chairman.

American Academy of General Practice.—A group of general practitioners founded the American Academy of General Practice in Atlantic City, N. J., June 10, 1947. Its purposes as outlined in the constitution are (1) to promote and maintain high standards of the general practice of medicine and surgery; (2) to encourage and assist in providing postgraduate study for general practitioners in medicine and surgery and to encourage and assist practicing physicians and surgeons to participate in such training; (3) to encourage and assist young men and women to prepare, qualify and establish themselves in general practice; (4) to protect the right of the general practitioner to engage in medical and surgical procedures for which he is qualified by training and experience, and (5) to advance medical science and private and public health. Membership is limited to members of the American Medical Association and physicians who have been in general practice at least three years and who are interested in continuing in postgraduate work. To continue as a member it is necessary to complete one hundred fifty hours of postgraduate work during each three years period. To be eligible for general membership the applicant must be a physician engaged in general practice, must have graduated from a medical school approved by the American Medical Association, must be licensed in the state in which he practices and must be a member of his local medical association. He must have had at least one year of rotating internship at an acceptable hospital or the equivalent in postgraduate training. He must have been engaged in general practice of medicine for at least five years immediately preceding his application for membership and during that time must have been engaged in some postgraduate educational activities. Any general membership shall terminate at the end of three years, and to be eligible for reelection a general member must have spent a minimum of one month during his three year period in postgraduate training

of a nature acceptable to the membership committee. The officers elected were Drs. Paul A. Davis, Akron, Ohio, president; Elmer C. Texter, Detroit, vice president; Ulrich R. Bryner, Salt Lake City, treasurer, and Stanley R. Truman, Oakland, Calif., secretary.

Prevalence of Poliomyelitis.—Reports of cases of poliomyelitis for the periods indicated have been received from the division of public health methods, U. S. Public Health Service:

Division and State	Week Ended Sept. 20, 1947	Week Ended Sept. 21, 1946	Median, 1942-1946	Total to Sept. 20, 1947	Total to Sept. 21, 1946	Total * March 16-Sept. 20, 1947	Total * March 17-Sept. 21, 1946
New England:							
Maine	2	0	2	30	18	27	18
New Hampshire	2	9	2	18	110	14	109
Vermont	2	2	4	22	22	14	18
Massachusetts	28	16	29	216	146	209	142
Rhode Island	12	14	1	120	43	119	43
Connecticut	15	1	11	102	54	99	46
Middle Atlantic:							
New York	158	90	90	680	822	644	789
New Jersey	28	9	17	174	168	168	162
Pennsylvania	40	14	14	286	176	272	162
East North Central:							
Ohio	146	46	37	746	472	736	457
Indiana	17	22	11	162	232	146	227
Illinois	89	210	93	606	1,648	584	1,640
Michigan	77	69	28	377	598	353	590
Wisconsin	27	94	26	125	775	101	762
West North Central:							
Minnesota	29	128	23	175	2,334	162	1,333
Iowa	5	31	14	102	381	94	372
Missouri	9	72	10	87	828	77	821
North Dakota	2	30	2	65	366	60	366
South Dakota	0	9	1	10	314	8	314
Nebraska	16	33	10	153	374	146	373
Kansas	5	68	11	69	643	51	639
South Atlantic:							
Delaware	6	4	2	122	15	122	15
Maryland	9	2	3	58	66	52	64
District of Columbia	3	2	2	12	17	10	16
Virginia	10	6	6	93	85	83	79
West Virginia	17	2	3	78	56	74	53
North Carolina	27	2	3	124	83	109	76
South Carolina	4	0	2	19	18	18	15
Georgia	5	3	3	55	128	48	120
Florida	1	15	2	71	495	46	446
East South Central:							
Kentucky	9	12	5	59	91	58	88
Tennessee	12	5	6	83	132	71	123
Alabama	2	18	3	40	346	27	343
Mississippi	2	3	3	38	244	21	227
West South Central:							
Arkansas	2	13	4	†61	288	†50	276
Louisiana	0	20	5	43	302	25	283
Oklahoma	1	15	15	41	292	30	286
Texas	4	33	33	144	773	119	745
Mountain:							
Montana	1	13	7	19	96	17	80
Idaho	9	7	2	102	27	92	27
Wyoming	1	9	1	15	99	12	98
Colorado	4	49	11	45	765	40	764
New Mexico	1	14	2	26	136	23	135
Arizona	0	5	4	28	91	25	88
Utah	0	24	22	8	99	3	93
Nevada	1	0	0	1	3	1	3
Pacific:							
Washington	8	44	20	97	304	89	271
Oregon	1	14	12	56	117	51	113
California	32	124	54	633	1,514	484	1,247
Total	881	1,425	...†6,496		†17,206	†5,884	16,739
Median, 1942-1946	...	....	864		8,882		8,485

* Last two columns show reported incidence since approximate seasonal low week (week ended between March 15 and 21).

† Figures changed by corrected reports.

VIRGIN ISLANDS

Appointments in Department of Health.—Dr. Kund Knud-Hansen has retired as commissioner of health after many years of government service. The acting commissioner is Dr. John S. Moorhead, a native of St. Croix. After seven years of service, Dr. Norman D. Thetford, St. Croix, has taken a terminal leave from the post of the assistant commissioner of health and chief municipal physician. Dr. Roy A. Anduze, a native of St. Thomas, will succeed him on a temporary basis. The Virgin Islands department of health operates general hospitals and clinics and performs the usual functions of a state health department. The two top positions, commissioner of health and chief municipal physician for St. Thomas and assistant commissioner of health and chief municipal physician for St. Croix, are both federal posts in the U. S. Department of the Interior.

PHILIPPINE ISLANDS

Annual Meeting.—At the fortieth annual convention of the Philippine Medical Association in Manila May 7, the following officers were elected: Drs. Januario Estrada, president; Guillermo Rustia, president-elect, and Antonio S. Fernando, secretary-treasurer, all of Manila.

Drive Against Tuberculosis and Malaria.—The United States Public Health Service and the Philippine Health Bureau are joining to cut the island death rate from tuberculosis and malaria. Dr. Antonio Villarama, secretary of health and public welfare, is reported to have said that of one million Filipinos whose chests were x-rayed 6.5 per cent were believed to present active tuberculosis. Thirty malaria control parties through the island are attempting to lower the death rate of 91 for each hundred thousand, nearly twice the prewar rate.

CANADA

McGill to Grant Degree in Tropical Medicine.—The wartime short course in tropical medicine at McGill University Faculty of Medicine, Montreal, has been revised and additional facilities have been provided for study leading to a D.T.M. degree. The course is being conducted by the department of health and social medicine with the assistance of members of other faculties of the university. The final third of the course is a period of specially arranged supervised training in tropical countries. This includes clinical hospital practice and health unit work. For further information address the Chairman, Department of Health and Social Medicine, 490 Pine Avenue, West, Montreal, Canada.

Montreal Medico-Chirurgical Society.—The fifteenth annual clinical convention of the Montreal Medico-Chirurgical Society will be held in Montreal October 6-11. Clinical sessions will be held at various hospitals. The program will also include demonstrations and exhibits. Other meetings of the society will be as follows: On October 24, Dr. H. Jackson Morgan, professor of medicine and head of the department, Vanderbilt University School of Medicine, Nashville, Tenn., will speak on "Peptic Ulcer," and Dr. Samuel J. Shane, Yarmouth, Nova Scotia, on "Cardiac Edema and the Serum Proteins"; on November 7, Dr. Richard J. Bing, assistant professor of surgery, Johns Hopkins Hospital, on "A Selection of Cases for Cardiac Surgery"; on December 5, Dr. Walter F. Kvale, Rochester, Minn., on "The Use of 'Dicumerol.'" On Jan. 9, 1948, Dr Robert R. Linton of Brookline, Mass., will speak on "Thrombophlebitis and Phlebothrombosis in the Medical and Surgical Patient."

CORRECTION

Location of Physicians.—In the ninth of the series of articles on "Location of Physicians," in THE JOURNAL, August 30, page 1552, the city of Berkeley, Alameda County, Calif., was erroneously listed as requesting general practitioners. The opening in this instance was for an associate or partner in general practice.

Marriages

CHARLES BROOKER CHENEY, New Haven, Conn., to Miss Frances Crandall Wheelock of Orange, N. J., July 26.

CARL WORRELL ROESSEL, New York, to Miss Barbara Madara Barclay of Mount Kisco, N. Y., August 15.

BERNARD OWEN BURCH, Livermore, Calif., to Miss Antoinette Katherine Erro of Fresno at Carmel, June 18.

WILEY STEWART FLANAGIN, Jacksonville, Fla., to Miss Lillian Greenlee Tate of Murphy, N. C., July 31.

CORNELIUS FRANCIS RYAN to Miss Dorothy Baumgardt, both of Oneonta, N. Y., September 3.

FRANCES ARLENE SWAN, Livonia, N. Y., to Mr. Walter H. Lieneck of Brooklyn August 16.

THORNTON TAYLOE PERRY III, Charles Town, W. Va., to Miss Gisele Chautemps in July.

JAMES R. MACK, Cincinnati, to Mrs. Frances Meyer Friedman of New York in August.

EDWARD J. DRANGINIS, Detroit, to Miss Nancy Singleton of Muskegon, Mich., June 28.

THOMAS H. MASON, Syracuse, N. Y., to Miss Louise English of Kenmore August 2.

HANS M. SCHAPIRE to Miss Lillian Levin, both of Chicago, September 4.

Deaths

Lunsford Dickson Fricks ✦ Medical Director, U. S. Public Health Service, retired, Seattle; born in Walker County, Georgia, July 18, 1873; Chattanooga (Tenn.) Medical College, 1897; appointed assistant surgeon, U. S. Public Health Service, in 1898, passed assistant surgeon in 1903, surgeon in 1912, senior surgeon in 1929 and medical director in 1930; retired Feb. 1, 1938; director of district number six with headquarters in Seattle from 1927 to 1935, when he became chief quarantine officer in the Hawaiian Islands; in 1942 became health officer of Helena and Lewis and Clark counties health unit in Montana; member of the American Public Health Association; Association of Military Surgeons of the United States, National Malaria Committee (serving for many years as secretary), Southern Medical Association, Veterans of the Spanish-American War and others; director of the extra cantonment sanitation, Camp Zachary Taylor, during World War I; received the degree of doctor of public health from the University of Georgia in 1926; died in U. S. Marine Hospital, July 9, aged 73, of pneumonia.

Robert Nason Nye ✦ Boston; born in Springfield, Mass., June 3, 1892; Harvard Medical School in Boston, 1918; assistant professor of bacteriology and immunology at the Harvard Medical School; member of the American Society of Clinical Investigation and the American Association of Pathologists and Bacteriologists; director at large of the Massachusetts Tuberculosis Association; councilor of the Massachusetts Medical Society and the Harvard Medical Alumni Association; trustee and treasurer of the Boston Medical Library; served as assistant director of the division of biologic laboratories of the Massachusetts State Department of Public Health; member of the committee on information of the National Research Council and a member of the committee on information, procurement and assignment service of the War Manpower Commission during World War II; affiliated with the Boston City Hospital; managing editor of the *New England Journal of Medicine;* died September 10, aged 55, of reticulum cell sarcoma.

Walter Prentice Bowers ✦ Clinton, Mass.; born in Clinton, May 19, 1855; Harvard Medical School, Boston, 1879; formerly secretary of the board of registration in medicine; past president of the Massachusetts Medical Society and the Worcester District Medical Society; for many years vice president and a member of the board of trustees of the Clinton Savings Bank and vice president and member of the board of directors of the Clinton Trust Company; served as selectman, a member of the board of health and a member of the town finance committee; in 1921 became managing editor of the *Boston Medical and Surgical Journal,* continuing when it became the *New England Journal of Medicine,* of which he had been editor emeritis; fellow of the American College of Surgeons; received the honorary degree of master of arts from his alma mater in 1935; founder and for many years president of the Clinton Hospital, where he died July 22, aged 92.

Hugh Page Newbill ✦ Staunton, Va.; born in Norfolk May 28, 1909; University of Virginia Department of Medicine, Charlottesville, 1934; interned at the Norfolk Protestant Hospital in Norfolk and served a residency at the University of Virginia Hospital in University; formerly on the faculty of the Louisiana State University School of Medicine in New Orleans, where he was on the staff of Charity Hospital; formerly assistant professor of neurology and psychiatry at the University of Virginia Department of Medicine and associated with the Davis Clinic of the University of Virginia Hospital in Charlottesville; in charge of the De Jarnette Sanatorium; found dead July 2, in a cabin at Sunnyacres in Albemarle County, aged 38.

Theobald Robert Rudolf, New Orleans; born in New Orleans May 14, 1877; Medical Department of Tulane University of Louisiana, New Orleans, 1902; member of the American Medical Association; at one time taught chemistry and metallurgy in the old New Orleans College of Dentistry; for many years professor of chemistry in the Boys' High School, which later became Warren Easton High School; at one time assistant in clinical microscopy and bacteriology at the New Orleans Polyclinic; served during World War I; specialist on the medical rating board of the U. S. Veterans Administration; affiliated with the Hotel Dieu; died June 11, aged 70, of coronary occlusion.

Francis Anton Goeltz ✦ Salt Lake City; born in New York Dec. 13, 1876; New York University Medical College, New York, 1898; specialist certified by the American Board of Urology, Inc.; member and past president of the Western Branch of the American Urological Association; past president of the Utah State Medical Society and the Salt Lake County Medical Society; fellow of the American College of Surgeons; served during World War I; affiliated with St. Mark's, Salt Lake County General and the Dr. W. H. Groves Latter-Day Saints hospitals; died June 25, aged 70, of carcinoma and heart disease.

Roy Carleton Perkins ✦ Bay City, Mich.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1903; formerly member of the city board of education and board of health, councilor of the Tenth District of the Michigan State Medical Society; served on the Mexican border and during World War I; at one time an officer in the medical corps of the National Guard; formerly member of the state council of health; on the staffs of the Mercy Hospital and the Bay City General Hospital, where he died June 18, aged 68, of coronary thrombosis.

Rollie Hayden Alexander, Owenton, Ky.; Kentucky School of Medicine, Louisville, 1898; died in the King's Daughters Hospital, Frankfort, July 20, aged 78.

William Gilbert Anderson, New Haven, Conn.; Western Reserve University Medical Department, Cleveland, 1883; director of the gymnasium, emeritus, at Yale University; organized New Haven Normal School of Gymnastics, now known as the Arnold College; died July 7, aged 86.

Jacob Brouner Austin, South Euclid, Ohio; Western Reserve University Medical Department, Cleveland, 1902; served overseas during World War I; died July 13, aged 71, of coronary thrombosis.

James H. Benefield, Fort Smith, Ark. (licensed in Arkansas in 1903); member of the American Medical Association; served on the staff of Sparks' Hospital; died July 8, aged 80, as the result of an automobile accident.

Frances S. Carothers Blanchard, Wheaton, Ill.; Woman's Hospital Medical College, Chicago, 1885; died July 4, aged 91.

Joseph Hoge Bogle, Collinsville, Ala.; Vanderbilt University School of Medicine, Nashville, Tenn., 1900; died in the Holy Name of Jesus Hospital, Gadsden, July 5, aged 67, following an operation for stone in the bladder.

Frank E. Bowman ✦ Detroit; Detroit College of Medicine, 1907; served on the staff of the Harper Hospital; died in the Highland Park General Hospital August 9, aged 73, of auricular fibrillation and old coronary thrombosis.

Samuel Joseph Brown ✦ Panora, Iowa; Rush Medical College, Chicago, 1898; secretary treasurer and past president of the Dallas-Guthrie Counties Medical Society; served as mayor, councilman, school director and president of the school board; died July 5, aged 75, of angina pectoris.

William J. Brown, Dover, Ark. (licensed in Arkansas in 1903); died in St. Mary's Hospital, Russellville, June 20, aged 69.

Joseph Lyman Bryan ✦ Xenia, Ill.; St. Louis University School of Medicine, 1906; district health superintendent, Illinois Department of Public Health; died in St. Paul, Minn., July 12, aged 66, of a skull fracture received in an automobile accident.

Delane Stow Calhoun, Ruston, La.; Washington University School of Medicine, St. Louis, 1904; died July 8, aged 68.

Robert William Carrall, Blue Island, Ill.; McGill University Faculty of Medicine, Montreal, Que., Canada, 1893; died June 28, aged 77.

William Morrill Colby, Randolph, Mass.; Boston University School of Medicine, 1898; died in Plymouth June 26, aged 79, of carcinoma of the prostate.

Charles Rodgers Conklin, New York; Albany Medical College, 1899; New York Homeopathic Medical College and Hospital, 1901; for many years medical director of the medical department of the Children's Aid Society; served on the staffs of the Vanderbilt Clinic, Laura Franklin Hospital, Metropolitan Hospital and the Flower and Fifth Avenue Hospitals, where he died July 7, aged 73, of intestinal obstruction.

Lee W. Cotton, Enid, Okla.; Missouri Medical College, St. Louis, 1887; member of the American Medical Association; served as county health officer; medical examiner for the draft board during World War I; died June 8, aged 86.

Jesse Hill Crouch ✦ Richmond, Va.; Medical College of Virginia, Richmond, 1911; director of public health for Henrico County; formerly epidemiologist of the Montana State Board of Health and of the Fort Worth, Texas, health department; at one time health officer of Williamsburg; died in the Stuart Circle Hospital June 13, aged 60, of coronary occlusion.

John Emerson Derbyshire, Van Buren, Ind.; Rush Medical College, Chicago, 1903; member of the American Medical Association; on the staff of the Marion (Ind.) General Hospital; died June 21, aged 73, of arteriosclerosis.

James R. Des Portes, Fort Mill, S. C.; Medical College of South Carolina, Charleston, 1900; member of the American Medical Association; past president of the South Carolina Medical Association and the York County Medical Society; died June 2, aged 68.

Charles Ezekiel Dumke, Denver; Denver and Gross College of Medicine, Denver, 1906; member of the American Medical Association; died in St. Luke's Hospital June 21, aged 66, of chronic myocarditis and arteriosclerosis.

Charles Frederick Duncan, Jacksonville, Fla.; College of Physicians and Surgeons, Boston, 1910; chief of the surgical staff of the Brewster Hospital, where he died recently, aged 67, of heart disease.

William Chauncey Fox, Chicago; the Hahnemann Medical College and Hospital, Chicago, 1914; died in Fremont, Mich., June 6, aged 63.

Frederick Standish Greene, Northampton, Mass.; Yale University Medical School, New Haven, Conn., 1926; died in the Veterans Hospital June 11, aged 49, of postencephalitic Parkinsonism.

Louis Richard Haas ⊕ Pittsburg, Kan.; Cornell University Medical College, New York, 1929; specialist certified by the American Board of Ophthalmology and the American Board of Otolaryngology; fellow of the American College of Surgeons; diplomate of the National Board of Medical Examiners; affiliated with the Mount Carmel Hospital; died June 30, aged 44, of coronary diease.

Arthur Otto Hahl ⊕ Clarence, N. Y.; University of Buffalo School of Medicine, 1908; served as medical examiner for local schools and as health officer of Clarence; died in Pasadena, Calif., June 17, aged 66, of coronary thrombosis.

Marcus Lafayette Hickson, Fort Valley, Ga.; Emory University School of Medicine, Atlanta, 1915; served during World War I; died June 18, aged 54, of heart disease.

Gregory L. Higgins, Carbondale, Pa.; College of Physicians and Surgeons, Baltimore, 1910; served on the staff of St. Joseph's Hospital; died June 25, aged 63, of fat embolism and a fractured femur received in a fall.

Benjamin Franklin Iden Jr., ⊕ Washington, D. C.; University of Virginia Department of Medicine, Charlottesville, 1909; served during World War I; on the staffs of the Doctors and Homeopathic hospitals; died July 6, aged 63.

John Martin Jackson, Aurora, Ind.; Medical College of Indiana, Indianapolis, 1905; member of the American Medical Association; served during World War I; died June 30, aged 66, of cerebral thrombosis.

Merit S. Jewell, Little York, Ill.; Louisville Medical College, 1898; member of the American Medical Association; president of the board of health; died June 28, aged 73, of cerebral hemorrhage.

Joseph Wencel Jinderlee ⊕ Cresco, Iowa; Keokuk Medical College, College of Physicians and Surgeons, 1903; died June 13, aged 73, of diabetes mellitus.

John W. Keithley, Beloit, Wis.; Kentucky School of Medicine, Louisville, 1893; member of the American Medical Association; died June 28, aged 82.

Edward Kingsley, Brookline, Mass.; Laval University Faculty of Medicine, Quebec, Canada, 1918; died May 13, aged 57, of carcinoma of the right lung.

Theodore Kuttner ⊕ New York; University and Bellevue Hospital Medical College, New York, 1906; member of the American Chemical Society; for many years associate in chemistry at the Mount Sinai Hospital; inventor of the Kuttner-Leitz microcolorimeter; died July 7, aged 70, of coronary occlusion.

Napoleon La Bonte, Clayton, Ind.; Indiana University School of Medicine, Indianapolis, 1913; member of the American Medical Association; died June 26, aged 64, of coronary occlusion and chronic duodenal ulcer.

Johan Herman Lee, Madison, Wis.; Kongelige Frederiks Universitet Medisinske Fakultet, Oslo, Norway, 1899; died in Wilmington, Calif., June 10, aged 76, of carcinoma of the colon.

William Hall Lewis ⊕ Donora, Pa.; Jefferson Medical College of Philadelphia, 1893; also a graduate in pharmacy; affiliated with Charleroi-Monesson Hospital in Charleroi; died July 3, aged 78, of arteriosclerosis and cerebral hemorrhage.

Maurice F. Linquist, New Haven, Conn.; New York Homeopathic Medical College and Hospital, New York, 1891; served on the staffs of the Hospital of St. Raphael and the Grace Hospital, where he died June 26, aged 78.

James Terry McConnaughey, Mount Pleasant, Iowa; Keokuk Medical College, College of Physicians and Surgeons, 1903; member of the American Medical Association; died June 18, aged 71, of chronic nephritis.

Reuben Terrell McCraw ⊕ Oxford, Ala.; University of Alabama School of Medicine, 1913; died in the Anniston Memorial Hospital, Anniston, June 9, aged 58, of coronary thrombosis.

Carl Raymond Madera, Upper Darby, Pa.; Hahnemann Medical College and Hospital, Philadelphia, 1933; member of the American Medical Association; died in the Hahnemann Hospital July 4, aged 47, of pneumonia.

Joseph James McGarry ⊕ North Tarrytown, N. Y.; Fordham University School of Medicine, New York, 1918; member of the American Society of Anesthetists; police surgeon; on the staff of the Tarrytown Hospital, where he died June 30, aged 51, of carcinoma of the lung with metastasis to the vertebrae.

Stephen Eugene McKenna ⊕ Los Angeles; University of California Medical School, San Francisco, 1937; formerly an intern at the Orange County Hospital in Orange, Calif.; resident in surgery at the Queen of Angels Hospital; served overseas during World War II; died June 16, aged 37, of bulbar poliomyelitis.

Archibald Carlyle McPhaden, Concrete, Wash.; Bennett Medical College, Chicago, 1911; member of the American Medical Association; on the staff of the Memorial Hospital in Sedro Woolley; died June 28, aged 63, of acute coronary occlusion.

Rudolph Manns ⊕ Denver; Gross Medical College, Denver, 1900; for many years surgeon for the Colorado and Southern Railway Company; member of the staffs of St. Joseph's, St. Luke's, Mercy, Children's, Presbyterian and National Jewish hospitals; died recently, aged 71, of coronary occlusion.

Joseph Hyman Marko, Cleveland; University of Virginia Department of Medicine, Charlottesville, 1946; interned at the Mount Sinai Hospital; killed in the crash of a DC4 airliner in the Blue Ridge mountains of Virginia June 13, aged 24.

John Tracy Melvin ⊕ Porterville, Calif.; Gross Medical College, Denver, 1891; an Affiliate Fellow of the American Medical Association; formerly affiliated with the Indian Service; served as president of the Tulare County Tuberculosis Association and as director of the board of the California State Tuberculosis Association; at one time medical director of the Tulare-King Counties Joint Tuberculosis Hospital in Springville; formerly member of the Colorado State Board of Health; died June 21, aged 85.

William Edwin Miller, Camden, N. J.; University of Pennsylvania Department of Medicine, Philadelphia, 1893; died in the Cooper Hospital June 30, aged 74, of fracture of the eleventh thoracic vertebra and arteriosclerosis.

William C. Mitchell, Tunbridge, Vt.; University of Vermont College of Medicine, Burlington, 1907; served as health officer; affiliated with the Veterans Administration Hospital in White River Junction; died June 20, aged 66, of pulmonary edema and chronic endocarditis.

David Bruce Moyer ⊕ Lansdale, Pa.; Medico-Chirurgical College of Philadelphia, 1908; died June 25, aged 64, of coronary occlusion.

Harold Gert Muller ⊕ Cato, N. Y.; Schlesische-Friedrich-Wilhelms-Universität Medizinische Fakultät, Breslau, Prussia, 1934; served overseas during World War II and was awarded the Bronze Star Medal for bravery; affiliated with the Lee Memorial Hospital in Fulton and the City Hospital in Auburn; died in the City Hospital, Syracuse, June 27, aged 38, of mumps and encephalitis.

George A. Nickelson, Pittsburgh; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1902; died June 24, aged 72.

Charles Henry Pate, Scranton, S. C.; Medical College of the State of South Carolina, Charleston, 1904; died June 26, aged 66, of bronchopneumonia, cerebral hemorrhage and diabetes mellitus.

Edward Cornelius Perry, Avon, N. Y.; Columbia University College of Physicians and Surgeons, New York, 1892; past president and treasurer of the Livingston County Medical Society; for many years county coroner, village health officer and surgeon for the Erie Railroad; died June 30, aged 81, of prostatic carcinoma.

Malcolm Hay Phillips, Pittsburgh; University of Pittsburgh School of Medicine, 1908; died in St. John's General Hospital recently, aged 61, of influenza, pneumonia and coronary artery disease.

Louis George Reynolds, Los Angeles; Northwestern University Medical School, Chicago, 1908; died in the Cedars of Lebanon Hospital June 22, aged 76.

William Clyde Roberts, Tallahassee, Fla.; the Hahnemann Medical College and Hospital, Chicago, 1906; at one time assistant medical director of the New York Life Insurance Company in New York; died June 22, aged 65, of congestive heart failure and essential benign hypertension.

Lee Rose, Carpenter, Ky.; Lincoln Memorial University Medical Department, Knoxville, 1914; member of the American Medical Association; chairman of the county board of education; served during World War I; shot and killed July 1, aged 61, by cattle thieves.

Oscar Leo Rudersdorf, Evanston, Ill.; Bennett Medical College, Chicago, 1912; member of the American Medical Association; affiliated with St. Francis Hospital; died June 28, aged 58, of coronary occlusion.

John William Sherman ✠ Mirando City, Texas; Medical Department of Grant University, Chattanooga, Tenn., 1906; died in Miami, Fla., June 19, aged 60, of coronary thrombosis.

Allie Marion Stuart, Manning, Ark. (licensed in Arkansas in 1903); died May 14, aged 66.

William Sweemer ✠ Milwaukee; College of Physicians and Surgeons of Chicago, 1884; an Affiliate Fellow of the American Medical Association; served as emeritus professor of diseases of children at the Milwaukee Medical College, of which he had been a founder; died June 21, aged 93, of senility.

Harry French Thompson, Forest City, Iowa; Rush Medical College, Chicago, 1894; member of the American Medical Association; past president of the Winnebago County Medical Society; died June 17, aged 77, of coronary occlusion.

Charles Root Turner, Philadelphia; University College of Medicine, Richmond, 1899; served as dean of the University of Pennsylvania School of Dentistry; died in a hospital at Raleigh, N. C., June 11, aged 71.

Benjamin VanSant, Turbotville, Pa.; Jefferson Medical College of Philadelphia, 1890; died June 16, aged 83, of chronic myocarditis.

Howard Lull Van Winkle ✠ Cedar Rapids, Iowa; Long Island College Hospital, Brooklyn, 1907; past president of the Linn County Medical Society; at one time affiliated with the New York State Board of Health in Albany and on the faculty of the Syracuse University College of Medicine in Syracuse, N. Y.; served during World War I; on the staffs of the Mercy Hospital and St. Luke's Methodist Hospital; died June 22, aged 64, of carcinoma of the pancreas.

CAPT. MYER H. BOYARSKY
M. C., A. U. S., 1917-1945

CAPT. VLADIMIR M. SASKO
M. C., A. U. S., 1914-1945

Leroy Powell Van Winkle ✠ Port Jefferson Station, L. I., N. Y.; Long Island College Hospital, Brooklyn, 1903; member of the American College of Radiology; specialist certified by the American Board of Radiology; consulting roentgenologist at the Huntington Hospital in Huntington and the Greenpoint Hospital in Brooklyn; visiting roentgenologist at the Central Islip State Hospital in Central Islip, John T. Mather Memorial Hospital and St. Charles Hospital for Crippled Children; died June 8.

Frank S. Vernon, Charleston, Mo.; Missouri Medical College, St. Louis, 1893; served as coroner and county physician; formerly on the staff of the State Hospital in Farmington; died June 28, aged 76, of heart disease.

Heilman Curtis Wadsworth, Washington, Ind.; Rush Medical College, Chicago, 1909; member of the American Medical Association; councilor of the Second District of the Indiana State Medical Association; served during World War I; died June 6, aged 68.

Marcus Fitzherbert Wheatland Jr., Camden, N. J.; Howard University College of Medicine, Washington, D. C., 1927; member of the American Medical Association; died in the University of Pennsylvania Hospital, Philadelphia, June 7, aged 48.

Herbert Temple Wikle ✠ Brooklyn; Vanderbilt University School of Medicine, Nashville, Tenn., 1919; assistant clinical professor of surgery at the Long Island College of Medicine; fellow of the American College of Surgeons; past president of the Brooklyn Surgical Society and the New York Gastroenterological Society; on the staffs of Cumberland Hospital, Methodist Hospital and the Brooklyn Hospital, where he died June 26, aged 53, of coronary thrombosis.

Alexander Woodward Winkler ✠ New Haven, Conn.; Harvard Medical School, Boston, 1931; assistant professor of medicine at the Yale University School of Medicine; diplomate of the National Board of Medical Examiners; specialist certified by the American Board of Internal Medicine; member of the American Society of Clinical Investigation; on the staff of the New Haven Hospital, where he died June 26, aged 38, of hypertensive cardiovascular disease.

George Roy Wiseman, Amherst, Ohio; Ohio Medical University, Columbus, 1900; served overseas during World War I; on the staff of St. Joseph's Hospital in Lorain; died June 20, aged 69, of coronary heart disease.

Edward W. Yates, Foreman, Ark. (licensed in Arkansas in 1929); member of the American Medical Association; died July 11, aged 47.

KILLED IN ACTION

Myer Harold Boyarsky, Burlington, Vt.; University of Vermont College of Medicine, Burlington, 1942; diplomate of the National Board of Medical Examiners; interned at St. Luke's Hospital in New Bedford, Mass.; began active duty as a first lieutenant in the medical corps, Army of the United States, on July 31, 1943; later promoted to captain; regimental surgeon of the 47th Infantry Regiment, 9th Division; received the Purple Heart, the Bronze Star and the Silver Star; killed in action in Germany April 19, 1945, aged 27.

Vladimir Molnar Sasko, Chicago; the School of Medicine of the Division of Biological Sciences, Chicago, 1938; interned at the University of Chicago Clinics and the City Hospital in Cleveland; began active duty as a first lieutenant in the medical corps, Army of the United States, July, 1, 1941; promoted to captain; on Dec. 10, 1944 en route by plane from Dobodura, New Guinea, to Hollandia, plane failed to arrive at its destination for reasons unknown; presumed dead in the Southwest Pacific Dec. 11, 1945, aged 31, by the War Department.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Aug. 23, 1947.

The Early Diagnosis of Poliomyelitis

At the present rate of notification of poliomyelitis 5,000 cases are expected before the end of the year, which is much in excess of any previous year since the disease became notifiable in 1912. At a special meeting of some 80 health officers a number of procedures for dealing with the outbreak were recommended. Swimming baths should not be closed unless there are some definite indications that patients may have been infected there. But the number of children admitted on any one day should be restricted, and they should be advised to stay in the baths for only a short period. Overcrowding is probably a more important factor than infection of the water. Hired bathing suits and towels should be washed and laundered before reuse. Schools should reopen as usual unless there are special indications to the contrary. Nursery schools and day nurseries should be closed on the occurrence of the first case. The chances of the spread of the virus there are regarded as greater than in ordinary schools. Children and adolescents who have been in contact with a patient should be warned to keep away from other children and young persons for three weeks.

Poliomyelitis Film for the Instruction of Physicians

Because of the importance of early diagnosis and the fact that few physicians have had an opportunity to see patients in the early preparalytic stage, the Ministry of Health has had a short film on the early diagnosis of poliomyelitis prepared. The British Medical Association has arranged to assist in distributing copies of the film and to have it shown at the meetings of the divisions of the association. By the end of the month there should be a hundred copies of the film ready for distribution. A chart of the age incidence is followed by symptoms. An effective scene shows the early restlessness of the young adult. A feature of this epidemic has been early involvement of the cranial nerves, and an outstanding close-up shows a palate with just enough weakness on the left to be pulled slightly toward the right. Other signs of the disease are demonstrated. Finally, simple measures to prevent the spread of infection are shown. The running time is only fifteen minutes. The latest figures, just announced, show that for the week ending August 16 646 cases of poliomyelitis were reported in England and Wales, compared to 448 and 568 in the weeks ending August 2 and 9. London had 89 notifications, Birmingham 18 and Manchester 15 for the week ending August 16. The total for that week was the largest in the epidemic.

Midwifery Under the National Health Service Act

The Minister of Health has issued a guide to local health authorities on their duties under the National Health Service Act. In the maternity service every woman will be entitled to a family physician, whom she will probably consult when she believes that she is pregnant. Subject to regulations which have yet to be made, it is contemplated that every general practitioner will be given an opportunity to say whether or not he desires to practice midwifery under the act and to answer calls by midwives for medical aid. The experience of practitioners who desire to do so will be reviewed by a local committee of a wholly professional character (consisting of local general practitioners, a consultant obstetrician and local authority's health officer). This committee will draw up a list of approved local practitioners and indicate to those who are not accepted for such a list the need for further obstetric experience. The list will be reviewed from time to time to insure that the physicians on it continue to undertake enough midwifery to remain competent. The duty of a family physician when consulted by a woman who is pregnant will be to see that she knows how to obtain the services of a midwife; if he himself is not on the approved list he will help the woman to choose a general practitioner obstetrician from the list. The physician selected will give her the necessary antepartum and postpartum care and will be present at the confinement if he considers it necessary or is called by the midwife.

PARIS

(From Our Regular Correspondent)

Aug. 30, 1947.

Outbreak of Smallpox

An epidemic of smallpox broke out at the beginning of this year. The epidemiologic investigation established that the infection was brought into the city in December 1946 by a patient from Liège, Belgium, where an epidemic prevailed. During December and January some unrecognized cases of severe smallpox must have occurred in Paris; between February 10 and March 30, 33 cases, 2 of which were fatal, had been observed. The epidemic seems to have been confined to the Claude-Bernard, Salpétrière and St. Louis hospitals. It was of the alastrim form and spread among unvaccinated children and among adults either not recently vaccinated or vaccinated without a positive effect. Strict measures of isolation and vaccination have been taken. Vaccinations were extended to inhabitants of buildings where the disease had appeared and neighboring buildings. On advice of the Superior Council of Public Hygiene, the members of the hospitals' staffs, the inpatients and outpatients and the visitors were vaccinated as well as those in the Institutions of the Paris District, all nurslings from the first month onward, school children and persons in homes for the aged and the incurable. Centers for gratuitous vaccination were opened in every quarter of town. In Paris 292,787 vaccinations were performed between March 11 and April 30 by the Service of the Seine District Prefecture. One million vaccinations were performed in the Seine district. Thanks to these measures, the epidemic soon subsided. The only complications arising from the numerous vaccinations were the deaths of 2 children given their first vaccination, 1 of whom died of bronchopneumonia. It has also been found that a postvaccinal complication may arise when, for some reason or other, the vaccine penetrates into the blood circulation. R. Boulain, P. Uhry and Gueniot have vaccinated 33 diabetic persons which, they explained at a meeting of the Medical Society of the Paris Hospitals, brought about an aggravation of diabetes in 7 patients. It is of interest that, at the same time, epidemics of variola were reported in Liège and in the British port of Grimsby. Several cases also occurred in Germany, Spain, Portugal, Italy and New York.

Congress of French-Speaking Pediatricians

The first postwar meeting of French-speaking pediatricians was held in Lyons under the presidency of Professor G. Mouriquand; three hundred French pediatricians and numerous Belgians, Luxemburgers, Dutch, Portuguese, Swiss and Czechoslovaks took part.

Nontuberculous Meningitis of Children.—R. Martin, B. Sureau and A. Milet pointed out that sulfonamide drugs in the treatment of meningococcic meningitis of children bring about 92 per cent of recoveries. In recurrent cases and in nurslings they add to the sulfonamide therapy the use of penicillin. R. Clement's observations on 50 cases of acute meningitis, half of them treated with sulfonamide drugs only and the other half with combined penicillin and sulfonamide compounds, confirmed the

results obtained by the foregoing practitioners. If the general condition and the temperature of the nursling does not improve, Clement performs ventricular paracentesis, followed by an injection of penicillin as early as the second day of the disease. Lelong, R. Joseph, A. Rosier and F. Alison were equally in favor of ventricular paracentesis with an early injection of penicillin. Pneumococcic meningitis, notwithstanding the combined sulfonamide-penicillin therapy, has still a 50 per cent death rate. R. A. Marquezy and Boeswilwald reported their observations on 19 cases of pneumococcic meningitis; of 10 patients treated with only sulfonamide drugs, there were 10 deaths; of 9 patients given sulfonamide-penicillin therapy, 4 recovered. They emphasized the value of early treatment; in nurslings they perform intraventricular injections at the rate of at least two each day (20,000 Oxford units). However, despite the continuation of local penicillin therapy, in 2 cases they have seen the pneumococci reappearing in the cerebrospinal fluid on the sixteenth and the twenty-first day. For the treatment of meningitis due to Hemophilus influenzae E. Gorter (Leyde) proposed intramuscular and intrarachidian injections of streptomycin, complemented, in extremely serious cases, with sulfadiazine, penicillin and, if possible, rabbit antiserum.

Chronic Rheumatic Infections of Children.—M. Lamy, Miss M. Jammet and M. Aussanaire have explained that chronic rheumatic manifestations, whatever be their type, certainly are ascribable to an undetermined infectious process. In the ankylotic form, with osteoarticular lesions, death, according to these authors, occurs after a few years; the prognosis of Still's disease (multiple rheumatoid arthritis) is also bad. To the contrary, R. Clement's observations revealed that, of 6 cases of the latter form, kept under observation for years, 3 lead an almost normal life after cures by sulfonamide therapy, which brought the sedimentation rate back to normal; the fourth case made a spontaneous recovery twelve years ago, after failure of all treatments. In his study of 295 patients kept under observation for ten years, R. Lesne has come to the conclusion that the chronic rheumatism of children is never the sequela of Bouillaud's disease (rheumatic fever). G. Mouriquand and G. Wenger (Lyons) have noted the lasting improvement of the pain by means of parathyroidectomy in a case of chronic rheumatism deformans after failure of treatment by calcium, ascorbic acid and vitamin D. L. Willemin-Clog (Clermont-Ferrand) has insisted on the therapeutic effect of immobilization and of orthopedic apparatuses in chronic rheumatism deformans.

JERUSALEM

(From Our Regular Correspondent)

Sept. 7, 1947.

The D. P. Disease

The name D. P. disease was chosen by P. Robinson for a complex of symptoms which he observed in a number of patients in the Allied Commission camps in Italy. In his paper in the *Acta Medica Orientalia* (**6**:188, 1947) he reports on the symptomatology. From 37 cases under observation the following histories were given almost unanimously: The patients felt fairly well as long as they were in concentration camps or with the partisans. Some suffered from angular stomatitis with or without photophobia and blurred vision. Some had night blindness. Others were suffering from edema, partly with peripheral neuritis. The first signs of stomach-intestine trouble appeared immediately after the patients had come to the UNRRA or AC camps. The main complaints were fulness and pressure in the stomach immediately after meals and a feeling of burning or pains late at night. The complaints were alleviated during the intake of food. Ocular trouble was present in a number of cases, and circumcorneal injections were sometimes found to be the cause. Otherwise, the physical examination showed normal results. Tests of the digestive juice revealed in all cases a complete achlorhydria. When roentgen examination of the stomach was done, delayed emptying of the stomach was always found.

From these symptoms the clinical suspicion of ariboflavinosis seemed justified. Administration of riboflavin was usually not successful. Only large doses of liver extract given over prolonged periods achieved definite and lasting improvement, and when the therapy was continued a complete cure resulted.

Two patients were operated on, their stomach trouble giving ground to the belief that they were suffering from gastric ulcers. During the operations, however, it was determined that ulcers did not exist but there was an atrophic gastritis. This atrophic gastritis is well known for its favorable reaction to liver therapy.

In summary Robinson states that the D. P. disease is an atrophic gastritis combined with vitamin B deficiency.

Palestine Society for Medical History

The opening session of the Palestine Society for Medical History took place in April 1947. Leading physicians of the country participated. In his opening address Dr. S. Muntner stressed the necessity and the aims of a Society for Medical History. Lectures held during the first session included, among others, a report by Dr. Sherman, president of the Association of Jewish Physicians in Palestine, on the "History of Jewish Medicine in Palestine during the Past Century." Professor Feigenbaum reported on "Medical Nomenclature, Considering in Particular the Ophthalmologic Terms in the Talmud."

In the first pamphlet published by the Palestine Society for Medical History, the tasks set for the society are sketched, and it is mentioned that shortly a series of publications will appear, which will be devoted to the history of Jewish medicine. The first book of this series, the "Book of Medicine" by Assaf, is already going into print. The reference to the first book written in Hebrew by R. Shabbatai Dolono in Christian Europe is of special importance within the frame of the newly founded Society for Medical History, since it was written in Salerno, Italy, exactly a thousand years ago. The foundation of the medical faculty of the Hebrew University in Jerusalem coincides with the thousandth anniversary of Jewish medicine in Europe.

Medical Department of the Jewish National and University Library

In July the new medical library was opened in the Medical School of the Hebrew University, the Nathan Ratnoff building. The medical library, previously part of the general library of the university, has thus obtained a room of its own, easily accessible to all research men and scholars working in the Medical School of the Hebrew University or in the Hadassah Hospital. The opening ceremony was led by Dr. Jaski, head of the Hadassah University Hospital. He pointed out the merits of two physicians who paved the road toward the success now achieved: Dr. Julius Jarcho, New York, a benefactor of the medical library system in Palestine, and Dr. Emanuel Libman, whose connections with the medical world of Palestine are known. A third physician who should have been mentioned is Dr. Joseph Chasanowitz, who more than fifty years ago in Russia conceived the idea of a great university library in Jerusalem, and who realized his idea in decades of struggling and collecting.

The director of the Jewish National and University Library, Dr. Joel, referred to the great difficulties caused by this new project, but he also pointed out how carefully the new library was equipped by the administration of the university and how it will be utilized in the future.

The medical library comprises, at present, about 22,000 books. In cooperation with the committee of the Jewish Medical Asso-

ciation, under Dr. Doljanski, the medical library was arranged in its new rooms with excellent taste. One reading room contains all the medical magazines and periodicals of the University library and has a selected hand library with more than three hundred current periodicals from all over the world.

Dr. Wallach has been placed in charge of the medical library.

MOSCOW

(From Our Regular Correspondent)

Aug. 19, 1947.

The Sixth All-Union Congress of Pediatricians

In Moscow from May 27 to June 1, 1947 the Sixth All-Union Congress of Pediatricians was held, the first since the war. About 1,800 pediatricians were present. Professor George N. Speransky, corresponding member of the Academy of Sciences of the U. S. S. R., member of the Academy of Medical Sciences, was president-elect of the congress. The first meeting was devoted to the memory of the founder of Russian pediatrics, Professor Nil F. Filatov, in connection with the centenary of his birth.

Mary D. Kovrigina, Deputy Minister of Health of the Soviet Union, in opening the congress noted that in 1947 about 25 per cent of all sums granted for public health care—4 billion rubles (about 755 million dollars)—have been given to expenditures for children's and maternity health protection. There are in the Soviet Union more than 18,500 pediatricians, not including 12,000 physicians of rural areas working on children's health and many thousands of medical nurses and teachers.

Nutritional disturbances especially in young children was one of the topics discussed. The principal thesis of Professor Mikhail S. Maslov's report was that the disturbances of children's nourishment resulting from different diseases may be seen simultaneously with symptoms of "toxicosis" and various septic processes. Dystrophy, "toxicosis" and sepsis may successively pass one into another. A young child, even if healthy, is not resistant enough to the action of toxins; all his regulative systems—reticulocytic, endothelial, fermentative and vitamin systems, hemoparenchymatous and hemoencephalic barriers—are insufficient. The endocrine and vegetative portions of the nervous system cannot at this age regulate all the functions because they are not developed completely. The maintenance of the normal condition of the child's organism depends on early diagnosis.

Professor Julia F. Dombrovskaya spoke on alimentary disturbances. The principal diseases of the undernourished child in early infancy are pneumonia and digestive diseases; in the preschool and school age, cardiovascular diseases and endocrine and vegetative disturbances. The initial digestive impairments result in disturbances of gastric secretion, i. e., hypochlorhydria, hyperchlorhydria or achlorhydria. Later disturbances of absorption and digestion may be present. The stool becomes enriched with neutral fats and fatty acid salts—signs of unbalanced hepatic function, according to Professor Speransky.

Professor Nicolas A. Krasnogorsky, member of the Academy of Medical Sciences, noted that alimentary and digestive disturbances in young children reduce the efficiency of the central nervous system. Cerebral and cortical excitability diminish, and the correlation between cortical and subcortical activity becomes delayed. Simultaneously, disturbances of cerebral and endocrine origin are observed, such as anorexia, polyuria and excessive thirst. Hypothyreosis may be present. Sometimes after prolonged dystrophy real endocrine disturbances such as hypophysial dwarfism and hypogenitalism may take place. Cardiovascular disturbances are also present—fall of blood pressure, dilatation of the right auricle and impairment of the pulse rhythm and frequency.

Professor Olga D. Sokolova-Ponomareva from the Omsk (Siberia) Medical Institute, corresponding member of the Academy of Medical Sciences, reported on "Blood Transfusion as a Curative Method for Young Children." On the basis of 6,000 blood transfusions she demonstrated its positive effect on the red blood cells, albumin and ferment contents and the result and improvement of the circulation, including capillaries.

Professor Alga P. Molchanova spoke on the significance of albumins and mineral substances in children's nutrition. Milk is the principal source of albumin for the child, containing in best physiologic proportions calcium, phosphorus and other valuable substances. Assistant doctor Sophy A. Bajandina reported on "Immunity Readings During Infectious and Septic Processes in Infants." She demonstrated that the maternal unboiled freshly drawn breast milk gives the best results in the treatment of nurslings' diseases, especially pneumonia and sepsis.

Professor Vera A. Krestovnikova reported that she discovered in the nasopharynx of newborn children with infectious diseases a predominance of hemolytic streptococci. In her opinion the nasopharynx is the primary nidus and entrance for toxic diseases. Dr. I. A. Stern, on the basis of Professor Krestovnikova's bacteriologic observations, divides the diseases of newborn into three principal groups: (1) acute diseases of the respiratory tract (nasopharyngitis, pneumonia and influenza), (2) septic purulent diseases and (3) infectious toxic diseases with entrance in the nasopharynx. Dr. Stern used for their prophylaxis a staphylococcic vaccine with good results.

One meeting was devoted to the etiology, pathogenesis and clinical course of pneumonia in infants, prematurely born infants and children of early age.

Prof. Mikhail A. Skvortsov stated that interstitial pneumonias often arise in the course of septic diseases. Their characteristic properties are an absence of exudate in the bronchi and alveoli simultaneously with large infiltrative and proliferative changes in alveolar and interlobar septums and in the peribronchial cellular tissue. Clinically the interstitial pneumonia is characterized by a rapid attack of cyanosis and by difficult breathing.

Interesting data were presented by the Kiev University docents D. L. Segalov and I. A. Maximovich. They differentiated two types of pneumonias in the case of infants with disturbed alimentation: (1) a usual reactive pneumonia and (2) an asymptomatic dysergic form. This differentiation is based on clinical observations of the course of the disease and on histologic study.

Professors E. I. Kvater and S. A. Jagunov in their reports, "Contact Work Between Obstetricians and Pediatricians" and "Rational Newborn Service," turned the congress' attention to the need for careful work of both types of specialists, especially in questions of correct lactation, preparation of the mammary gland for feeding, prophylactic measures against mastitis, report of the effect of obstetric operations on the newborn and of the significance of acute infectious diseases on the future sexual development of girls.

More than eighty reports were presented at the congress. In the Soviet Union there exist fifteen state scientific investigatory institutes for maternal and child welfare. This year for the work of only three principal institutes 29 million rubles (about $5,500,000) are granted. There are sixty-two pediatric clinics as departments of medical institutes with a total of more than one thousand specialists and scientific workers in pediatrics. There are also fifty scientific pediatric societies.

In closing the congress Professor George N. Speransky, the president, urged its members to creative work to solve great problems of Soviet pediatrics, emphasizing the role of scientific societies in the development of the correct mode of pediatric thought.

Correspondence

THE STABILITY OF PROTHROMBIN

To the Editor:—The recent current comment on Stability of Prothrombin in THE JOURNAL, September 9, page 36, contains certain statements to which I am compelled to take exception; particularly to one: "Unreliable values for prothrombin obtained by the one stage method etc." It might be well to inquire concerning the actual facts. In 1943 I reported in the *American Journal of Physiology* (**140**:212 [Nov.] 1943) my discovery that the delayed prothrombin time in stored plasma was due to the disappearance of a factor which was different from the prothrombin principle, which is reduced in "dicumarol" poisoning and which is adsorbable by aluminum trihydroxide, $Al(OH)_3$. From these results I concluded that prothrombin was a complex and that one of the components was this labile factor whose activity was slowly diminished in stored plasma by oxidation. Recently Owren (*Lancet* **1**:446 [April 5] 1947) reported a case in which the bleeding tendency appears definitely to be due to a lack of this factor. That this factor is missed in the analysis of stored plasma by the more elaborate two stage method is probably accounted for by the possibility that the thromboplastin employed (beef lung) contains sufficient quantity of the labile factor as an impurity to mask the defect in the highly diluted plasma.

By means of my one stage method I have discovered two families in each of which several members have a congenital hypoprothrombinemia; but, curiously, the factor deficient in the one family is different from the one lacking in the second family (*Lancet* **2**:379 [Sept. 13] 1947). The concentration of the labile factor is normal in the affected members of both families. This clearly suggests that the prothrombin activity as indicated by the prothrombin time of the one stage procedure is dependent on three factors. A diminution of any one of these three factors sufficient to increase the prothrombin time to 20 second (in human beings) appears to produce a bleeding tendency. Since the test of prothrombin time, when carefully and correctly performed, has a sensitivity so delicate that a variation of only 2 or 3 seconds marks the difference between normal hemostasis and a hemorrhagic diathesis, it seems high time to stop quibbling about the theoretic reliability of the one stage method and to concentrate on having the test carried out correctly and accurately (according to my specific directions) in both the clinical and the research laboratories, thereby putting an end to the abominable confusion concerning prothrombin values which is rampant at present.

ARMAND J. QUICK, M.D., Milwaukee.

CAVERNOUS SINUS THROMBOSIS

To the Editor:—In an article entitled "Cavernous Sinus Thrombosis" by Samuel L. Fox and J. Brooks West published in THE JOURNAL, August 23, the authors say on page 1454: "A careful review of the literature by us fails to reveal any report of a case in which 'dicumarol' was employed, with or without other agents, so that the use of this drug in 1 of our cases may well represent its earliest use in treatment of this condition."

In an article entitled "A Case of Cavernous Sinus Thrombosis Successfully Treated by Combined Anticoagulant and Chemotherapy," which was published in the *Annals of Internal Medicine* (**24**:1093 [June] 1946) we state on page 1095 that this patient was treated with "dicumarol."

C. REICH, M.D.
D. LIKELY, M.D.
M. YAHR, M.D.
R. BARON, M.D.
New York.

PROPHYLAXIS AGAINST OPHTHALMIA NEONATORUM

To the Editor:—At the June session of the American Medical Association this year, I presented a resolution before the Section on Ophthalmology condemning the use of silver nitrate and urging its replacement by antibiotics in the prevention of ophthalmia neonatorum. A copy of this resolution was published in THE JOURNAL July 5.

In the August 9 issue of THE JOURNAL there appears an important publication entitled "Prophylaxis Against Ophthalmia Neonatorum" by H. Charles Franklin of Memphis, Tenn. This report is a comparison of the efficacy of penicillin compared with silver nitrate. Although this piece of research work has many weak points, it emphasizes the beginning of the end of silver nitrate in the prevention of ophthalmia neonatorum. Like most clinicians, Dr. Franklin seeks to point out the fallacy which most of us have glorified since the year 1884, that one drop of any chemical can stop the growth of any pathogenic organism. Ophthalmologists, particularly those in Philadelphia, have discovered that the efficacy of silver nitrate is in the use of irrigating solutions, principally salt solution and boric acid. Keeping in mind that the silver served only as a silver lining of imagination, the mechanical flushing of the eyes actually accomplished the prevention of the disease.

Credé originally emphasized the cleansing of the birth canal, using silver nitrate in the babies' eyes only as a secondary thought. Through the years both the obstetricians and the ophthalmologists forgot completely about the source of infection, namely the birth canal, and found it convenient to believe in the safety of one drop of silver nitrate in the eyes of the newborn. It seems short of folly for physicians to use silver nitrate today in lieu of the effectiveness of antibiotics.

It is unscientific to treat or prevent any disease except at its sources. It is my contention that the babies' eyes should receive no preventive treatment whatever. Emphasis should be placed on partial sterilization of the birth canal for at least twenty-four hours before delivery. This can be accomplished by the use of penicillin vaginal suppositories or by the parenteral use of penicillin, using a single dose of 300,000 units in oil. It is rightly believed that the vaginal tract cannot be completely sterilized. It is not necessary to sterilize the vaginal tract completely before delivery. Approximately 98 per cent of all babies would escape infection even if 100 per cent of the mothers were infected with pathogenic organisms. In other words, there is a natural safety of 98 per cent by natural means. It is not necessary to put irritating chemicals in the eyes of all newborn babies in order possibly to save infection of the other 2 per cent. It is my personal experience that all cases of gonorrheal ophthalmia in the newborn can be positively cured in a few days. There is no need for a single case of blindness to result. A decade ago, practically all cases of ophthalmia neonatorum required weeks of treatment and in almost every case some damage to the eyes was noted. The baby world is free from this danger in the antibiotic period.

The prevention of ophthalmia neonatorum should be directed to the treatment of the infected expectant mother by the use of antibiotics, and the eyes of the newborn should receive no treatment whatever. Should an occasional case of infection in the newborn develop, penicillin will cure it.

I have not mentioned the many organisms responsible for ophthalmia neonatorum. There is only one damaging organism and that is the gonococcus. Cases of infection from other organisms do not result in blindness. Since the gonococcus can be controlled by antibiotics, the prevention of ophthalmia neonatorum of the future must be directed to the expectant mother alone.

LOUIS LEHRFELD, M.D.,
1321 Spruce Street,
Philadelphia 7.

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

NATIONAL BOARD OF MEDICAL EXAMINERS EXAMINING BOARDS IN SPECIALTIES

Examinations of the National Board of Medical Examiners and the Examining Boards in Specialties were published in THE JOURNAL, Sept. 27, page 246.

BOARDS OF MEDICAL EXAMINERS

ALABAMA: *Examination.* Montgomery, June 22-24, 1948. Sec., Dr. D. G. Gill, 519 Dexter Ave., Montgomery 4.

ARIZONA: * *Examination.* Phoenix, Oct. 7-8. Sec., Dr. J. H. Patterson, 826 Security Building, Phoenix.

ARKANSAS: * *Examination.* Texarkana, Nov. 6-7, 1947. Sec., L. J. Kosminsky, Texarkana. *Eclectic.* Little Rock, Nov. 6. Sec., Dr. Clarence H. Young, 1415 Main St., Little Rock.

CALIFORNIA: *Written.* Sacramento, Oct. 20-23. *Oral.* Los Angeles, Nov. 8-9. Sec., Dr. Frederick N. Scatena, 1020 N St., Sacramento 14.

CONNECTICUT: *Examination.* Hartford, Nov. 11-12. Sec., Dr. Creighton Barker, 258 Church St., New Haven.

DELAWARE: *Examination.* Dover, Jan. 13-15. *Endorsement.* Dover, Jan. 20. Sec., Dr. J. S. McDaniel, 229 S. State St., Dover.

FLORIDA: * *Examination.* Jacksonville, Nov. 25-26. Sec., Dr. Harold D. Van Schaick, 6675 Windsor Lane, La Gorce Island, Miami.

GEORGIA: Atlanta, Oct. 14-16. Sec., Mr. R. C. Coleman, 111 State Capitol, Atlanta 3.

HAWAII: *Examination.* Honolulu, Jan. 12-15, 1948. Sec., Dr. S. E. Doolittle, 881 S. Hotel St., Honolulu, T. H.

IDAHO: Boise, Jan. 13-15. Sec., Miss Estella S. Mulliner, 355 State Capitol Bldg., Boise.

ILLINOIS: Chicago, Oct. 14-16. Supt. of Registration, Dept. of Registration and Education, Mr. Philip M. Harman, Springfield.

INDIANA: *Examination.* Indianapolis, June 1948. Sec., Board of Medical Registration and Examination, Dr. Paul R. Tindall, K of P Bldg., Indianapolis.

KANSAS: Topeka, Dec. 3-4. Sec., Board of Medical Registration and Examination, Dr. J. F. Hassig, 905 N. 7th St., Kansas City.

MAINE: Portland, Nov. 12-13. Sec., Dr. A. P. Leighton, 192 State Street, Portland.

MARYLAND: *Medical Examination.* Baltimore, Dec. 9-12. Sec., Dr. Lewis P. Gundry, 1215 Cathedral St., Baltimore. *Homeopathic Examination.* Baltimore, Dec. 9-10. Sec., Dr. J. A. Evans, 612 W. 40th St., Baltimore.

MASSACHUSETTS: *Examination.* Boston, Nov. 18-21. Sec., Dr. H. Q. Gallupe, 413-E State House, Boston.

MICHIGAN: * *Examination.* Lansing, Nov. 19-21. Sec., Board of Registration in Medicine, Dr. J. E. McIntyre, 100 W. Allegan St., Lansing 8.

MINNESOTA: * Minneapolis, Oct. 21-23. Sec., Dr. J. F. DuBois, 230 Lowry Medical Arts Bldg., St. Paul 2.

MISSISSIPPI: *Endorsement.* Jackson, Dec. 1947. Asst. Sec., State Board of Health, Dr. R. N. Whitfield, Jackson.

MISSOURI: *Examination.* St. Louis, Oct. 20-22. Exec. Sec., Mr. John A. Hailey, State Capitol Bldg., Jefferson City.

MONTANA: Helena, Oct. 6-8. Sec., Dr. O. G. Klein, First National Bank Bldg., Helena.

NEVADA: Carson City, Nov. 3. Sec., Dr. G. H. Ross, 215 N. Carson St., Carson City.

NEW JERSEY: *Examination.* Trenton, Oct. 21-22. Sec., Dr. E. S. Hallinger, 28 W. State St., Trenton.

NEW MEXICO: * Santa Fe, Oct. 13-14. Sec., Dr. LeGrand Ward, 141 E. Palace Ave., Santa Fe.

NEW YORK: *Examination.* Albany, Buffalo, New York and Syracuse, Oct. 6-9, 1947. Sec., Dr. Jacob L. Lochner, Jr., Education Bldg., Albany.

NORTH CAROLINA: *Endorsement.* Raleigh, Oct. 20. Act. Sec., Mrs. L. J. McNeill, 226 Hillsboro St., Raleigh.

NORTH DAKOTA: Grand Forks, Jan. 6-9. Sec., Dr., G. M. Williamson, 4½ S. Third St., Grand Forks.

OHIO: *Examination.* Columbus, Oct. 14. *Endorsement.* Columbus, Dec. 2-4. Sec., Dr. H. M. Platter, 21 W. Broad St., Columbus.

OKLAHOMA: *Endorsement.* Oklahoma City, Oct. 28-29. Sec., Dr. F. Clinton Gallaher, 813 Braniff Bldg., Oklahoma City.

OREGON: * *Endorsement.* Portland, Oct. 17-18. Exec. Sec., Miss L. M. Conlee, 608 Failing Bldg., Portland.

PENNSYLVANIA: *Examination.* Harrisburg, Jan. 1948. Acting Sec., Board of Medical Education and Licensure, Mrs. M. G. Steiner, 351 Education Bldg., Harrisburg.

SOUTH CAROLINA: Columbia, Nov. 10-12. Sec., Dr. N. B. Heyward, 1329 Blanding St., Columbia.

SOUTH DAKOTA: * Pierre, Jan. 20. Sec., State Board of Health, Dr. Gilbert Cottam, Capitol Bldg., Pierre.

TEXAS: San Antonio, Nov. 12-14, 1947. Sec., Dr. T. J. Crowe, 918-20 Texas Bank Bldg., Dallas 2.

UTAH: *Reciprocity.* Oct. 8. *Examination.* Salt Lake City, June, 1948. Asst. Dir., Department of Registration, Miss Rena B. Loomis, 324 State Capitol Bldg., Salt Lake City.

VIRGINIA: Richmond, Dec. 4-6. Sec., Dr. K. D. Graves, 30½ Franklin Rd., Roanoke.

WYOMING: *Examination.* Cheyenne, Oct. 6. Sec., Dr. G. M. Anderson, Capitol Bldg., Cheyenne.

* Basic Science Certificate required.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

ARIZONA: Dec. 16. Sec., Mr. Francis A. Roy, Science Hall, University of Arizona, Tucson.

ARKANSAS: *Examination.* Little Rock, Oct. 7. Sec., Mr. L. E. Gebauer, 701 Main St., Little Rock.

COLORADO: *Examination.* Denver, Dec. 17-18. Sec., Dr. Esther B. Starks, 1459 Ogden St., Denver.

CONNECTICUT: *Examination.* New Haven, Oct. 11. Exec. Asst., State Board of Healing Arts, Mr. W. G. Reynolds, 250 Church St., New Haven 10.

DISTRICT OF COLUMBIA: *Examination.* Washington, Oct. 20-21. Sec., Commission on Licensure, Dr. G. C. Ruhland, 6012 E. Municipal Bldg., Washington.

FLORIDA: *Examination.* Gainesville, Nov. 1. Final date for filing application is Oct. 16. Sec., Dr. W. M. Emmell, University of Florida, Gainesville.

IOWA: Des Moines, Jan. 13, April 13, July 13, Oct. 12. Sec., Dr. Ben H. Peterson, Coe College, Cedar Rapids.

MICHIGAN: *Examination.* Ann Arbor and Detroit, Oct. 10-11. Sec., Miss Eloise LeBeau, 101 N. Walnut St., Lansing.

MINNESOTA: *Examination.* Minneapolis, Oct. 7-8. Sec., Dr. Raymond N. Bieter, 105 M Hall, University of Minnesota, Minneapolis.

NEBRASKA: *Examination.* Omaha, Oct. 7-8. Dir., Bureau of Examining Boards, Mr. Oscar F. Humble, State Department of Health, Room 1009, State Capitol Bldg., Lincoln 9.

NEW MEXICO: *Examination.* Santa Fe, Nov. 2. Sec., Miss Marion M. Rhea, 114 E. Marcy, Santa Fe.

OKLAHOMA: Spring 1948. Sec., Dr. Frank Clinton Gallaher, 813 Braniff Bldg., Oklahoma City.

OREGON: *Examination.* Portland, Dec. 6. Admin., Mr. C. D. Byrne, Univ. of Oregon, Eugene.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Federal Food and Drug Acts: Sufficiency of Evidence to Seize and Condemn Colonic Irrigator.—The United States filed actions for the seizure and condemnation of two devices intended for use as colonic irrigators, bearing plates reading "Tox-Eliminator Company, Inc., Glendale, California" and accompanied by circulars relating thereto. From judgments dismissing the actions, the United States appealed to the Circuit Court of Appeals, Tenth Circuit.

It was stipulated that the sale of the two devices in question had been made, one to a doctor of naturopathy and the other to a doctor of chiropractic; that the devices were displayed, together with certain circulars extolling their merits, in the places of business of these two men for the purpose of selling the services of the devices; that both the devices and the circulars had been transported in interstate commerce. The devices are described as colonic irrigators. They differ from an ordinary enema device in that they have an inflow and an outflow tube. The inflow tube is equipped with a thermostatic valve, by which the temperature of the water can be regulated, and a pressure valve, which limits the pressure of the water entering the body to 40 inches. The outflow tube has a transparent arrangement by which the contents coming from the bowels can be seen and observed as they leave the body. The devices are attached to an ordinary water faucet. One of the circulars involved was labeled "The Modern Scientific Drugless Way to Health," and the other was called "The Magic Power of Water." Much of the controversy centers around the representations contained in these two circulars.

The government's case was based on the testimony of five medical experts, whose qualifications in their respective fields stand admitted. These experts testified that, while they had neither used the device nor seen it in use, they understood fully the principles on which it operated, namely, the washing out of the colon by forcing a stream of pulsating water into the intestines. They explained in considerable detail the physiology of the human system as well as the causes, and treatments therefor, of the diseases listed in the circulars. They admitted, however, that the causes of a number of the diseases listed were still unknown and that the treatments therefor were not definitely catalogued. They testified that intestinal toxemia, referred to in the circular, was not a condition known to medical science

and that the function of the colon had little, if anything, to do with the numerous diseases mentioned. In their opinion a colonic irrigation will not cure hardening of the arteries, migraine, lumbago, colitis, gallbladder complications, high or low blood pressure, irregular heart, rheumatism or any of the other named diseases. In conclusion, they said that colonic irrigations are helpful in a limited sense only as relief measures in temporary discomfort caused by severe impaction or as a preparation in case of some major abdominal surgical operations, but that colonic irrigations do not, and cannot, constitute an appropriate treatment for any of the diseases listed in the circulars.

The defense, on the other hand, offered the testimony of Neal Bishop, a chiropractor, and of J. O. Wolvin, the manufacturer and distributor of the devices in question. Bishop testified that the statements in the circulars were true; that he had treated patients with such a device in connection with other therapy, such as chiropractic adjustments and diathermy, and that its use was helpful. He did not, however, testify specifically that its use had effected a cure in a single case of any of the diseases enumerated in the circulars. Wolvin testified that the use of the device had cured him of a chronic case of asthma and said that when the asthma has a tendency to recur, his use of the device eliminates it. The only other evidence offered by the defense consisted of excerpts from several medical books, only one of which stated that a colonic irrigation would aid in the treatment of any of the diseases named in the circular, other than some diseases of the colon.

The excerpts from these medical books were introduced by the defense over the objection of the government. While the authorities are not in complete accord, the weight of authority, said the court, is that medical books and treatises are not admissible to prove the statements therein contained. The trial court, therefore, erred in admitting and receiving in evidence excerpts from these books offered by the defendants for the purpose of establishing the truth of the statements contained therein.

While the trial court did not exclude the testimony of the five medical experts offered by the government, it was of the apparent opinion that their testimony was entitled to no consideration because they had neither tested the device in question nor observed it in operation. That these medical experts were competent and qualified to testify as to the matters in issue, said the appellate court, is clear. They were not disqualified merely because they had neither used the devices in question nor seen them in operation. They testified not only that they were conversant with colonic irrigation but also that they were familiar with the principles of these particular devices. Fundamentally, these devices are not essentially different from any other circulatory apparatus for the purpose of giving an enema. The testimony of these medical experts was competent and constituted substantial evidence.

The trial court found that the two circulars in question constituted labeling as defined in the Food and Drug Act. It did not make a separate finding whether the statements contained therein were true or constituted mislabeling. It must, however, have been of the opinion that it did not constitute mislabeling, otherwise it could not have concluded as a matter of law that the relief prayed for should not be granted. In order for the government to prevail, said the appellate court, it was not necessary to prove that all the representations in the two circulars were false. The charge of mislabeling would be established if the evidence proved any one of the representations to be false. Here the substantial evidence by the government establishes the falsity, with minor exceptions, of practically every one of the broad claims set up in these circulars. The defendants offered positive evidence only as to one claim—asthma. It must therefore be conceded that the government has established the falsity of many of these claims not only by the greater weight of the evidence but by all the evidence in the record.

It may be conceded, the appellate court continued, that the device's use in flushing out the colon under expert supervision has a tendency to eliminate some toxins therefrom, thus preventing their entrance into the blood stream and thus contributing somewhat to the purification of the blood and improvement in general health. But this is not what the labeling circulars state. In effect, they hold the machine out as a cure-all for all the ills that affect the human body. It may be argued that the circulars do not promise a full cure in all these cases but only relief and improvement. A casual reading of the circulars is sufficient to establish beyond doubt that the statements in these circulars would induce and were intended to induce the belief in the minds of many of the ailing and suffering that the "toxeliminator" promised absolute and general relief from all their ailments. The circulars, concluded the appellate court, are inherently dishonest and deceiving and constitute misbranding within the meaning of the Act.

Accordingly the judgments of the trial court denying the government's petition for seizure and condemnation were reversed.—*United States v. One Device, Intended for Use as a Colonic Irrigator, 160 F. (2d) 194 (1947).*

Medical Experts: Training and Experience Required.—The defendants were jointly indicted for murder, found guilty and sentenced to death. From such conviction they appealed to the Supreme Judicial Court of Massachusetts.

The deceased had been shot in the back. The shirt worn by him was found beside the body and there was no bullet hole in it. At the trial the medical examiner, called by the commonwealth, testified that there was in the middle of the back of the deceased a small bullet wound; that "there was very little powder marks outside but there was a ring which could have been made by the muzzle . . . or the jacket of a gun"; that "Beneath the skin was this fairly wide cavity which was blackened and filled pretty much with burnt powder . . ."; that "there was quite a cavity below the skin which was blackened and covered with burnt powder fragments"; that the powder marks on the outside were "just speckles"; that the ring was "interrupted" and about a half inch in diameter; and that there was very little powder on the skin. Thereafter, subject to exception, the witness was allowed to testify that there was at least some powder on the skin about the wound; that the black of the powder was underneath the skin; and that in his opinion the muzzle of "the gun was directly on the skin."

The defendants assign error in that the medical examiner was not sufficiently qualified as an expert to testify that the marks in or about the wound were caused by powder or that the muzzle of the gun was directly on the skin of the deceased. Bearing on qualification, there was evidence that the witness had been a practicing physician, specializing in surgery; that he had been a medical examiner for fifteen years; that he had operated perhaps three times on persons having gun shot wounds, including the type inflicted at close range and the type inflicted at long range; that as medical examiner he had looked at quite a number—about fifteen—bodies where death had been caused by bullet or gun shot wounds, of which about fourteen were bullet wounds; that he believed about eight of these were from bullets fired at close range, all of which, however, were fired through clothing; that he had examined, he should say, six bullet wounds in a nude part of the body, some of these being in the head; but that he had never examined a body where the bullet entered the back of an individual without any clothing.

The defendants argued that the witness was not qualified because it did not appear that he had ever seen a wound from a bullet fired at close range that had not passed through clothing. Assuming that the presence or absence of clothing might affect the appearance of the wound from a bullet fired at close range, said the court, we think it clear, nevertheless, that the professional experience of the witness, particularly with respect to wounds from bullets, both those fired at long range and those fired at short range, would place him in a better position than the average juryman to form conclusions whether the "speckles" observed by him outside the wound and the black appearance under the skin were due to powder and as to the position of the gun when the bullet was fired. A witness's training and experience may well qualify him to give an opinion in reference to a problem which he had never before encountered in precisely the same form. There was no error in allowing the medical examiner to testify as he did.

Other contentions of the defendant were also overruled and the conviction for murder was affirmed.—*Commonwealth v. Bellino, 71 N. E. (2d) 411 (Mass., 1947).*

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1937 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied with stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Journal of Clinical Pathology, Baltimore

17:427-506 (June) 1947

*Hemoglobinuric Nephrosis in Traumatic Shock. T. B. Mallory.—p. 427.
Studies on Phagocytosis. R. Altschul and Aganeta M. Friesen.—p. 444.
*Agnogenic Myeloid Metaplasia of the Spleen: Report of Case with Necropsy Findings. S. A. Levinson and L. R. Limarzi.—p. 449.
Survey of Commercial Rh Antiserums. M. G. Levine and R. E. Hoyt. —p. 462.
Role of Presumed Serum Protein in Pathogenesis of Erythroblastosis Fetalis. J. Gurevitch, Z. Polishuk and D. Hermoni.—p. 465.
Nonproduction by Penicillin of False Positive Reactions in Kahn and Kolmer Tests. R. D. Turner.—p. 469.
Some Clinical Observations on Prothrombin Test. B. Fisher.—p. 471.
Genitourinary Infection: Bacteriologic Study of 150 Cases. J. McKay, C. E. Edwards and Helen Blake Leonard.—p. 479.
Leukocyte Counts in Normal White Women Before and After Delivery. L. R. Cason and G. W. Phillips.—p. 483.

Hemoglobinuric Nephrosis in Traumatic Shock.—According to Mallory, army experience has made many physicians familiar with the syndrome of renal insufficiency following resuscitation from shock. Lucké has shown that a similar lesion, which he has termed "lower nephron nephrosis," may develop in mismatched blood transfusions, the crush syndrome, blackwater fever, heat stroke, high altitude anoxia, thermal and chemical burns, carbon tetrachloride and mushroom poisoning, and sulfonamide sensitivity. The author has seen it following anaphylactic shock, severe streptococcic infection and infantile gastroenteritis. It is possible to recognize cases in the literature under such titles as interstitial nephritis and hepatorenal syndrome. His discussion is based on 60 fatal cases of battle injury which were studied clinically and pathologically. These observations are reinforced by a survey of 200 similar cases from the files of the Fifteenth Medical General Laboratory. The constant clinical features are oliguria, azotemia, excretion of pigment and albumin in an acid urine and fixation of specific gravity. The appearance of mild hypertension on the third or fourth day is inconstant but is of great diagnostic importance. The initial histologic change appears eighteen to twenty-four hours after injury and consists of lipid vacuolization of the ascending limbs of Henle's loop. The second stage is precipitation of pigment in the distal convoluted and collecting tubules. Moderate dilatation of convoluted tubules follows pigment precipitation. Sometimes on the third day, regularly on the fourth and fifth days, necrosis and regeneration of epithelium in the ascending limbs and distal tubules become evident and simultaneously lymphocytes appear between the tubules and about the vessels. From the fifth day on, rupture of tubules with herniation of their content into the stroma and consequent granuloma formation become frequent. The last development in many cases is the formation of nonocclusive mural thrombi in many of the small veins. In clinicopathologic correlation two factors were constant: the excretion of benzidine positive pigment in the urine and recovery from shock or related physiologic abnormality. Renal insufficiency was found to antedate all structural change but was never progressive in the absence of a demonstrable pigment nephropathy. Although pigment precipitation is an essential factor in the development of the "shock kidney," the mechanism of its effect remains unelucidated.

Agnogenic Myeloid Metaplasia of Spleen.—Levinson and Limarzi point out that Jackson and others in 1940 described a syndrome of extramedullary myeloid metaplasia which they designated as agnogenic. Because this condition is often confused with myelogenous leukemia or acquired hemolytic jaundice, these authors separated agnogenic myeloid metaplasia of the spleen from other conditions. Extramedullary myelopoiesis may occur in various infectious and septic states such as metastatic carcinoma to bone and leukemia. In these types of extramedullary myelopoiesis the clinical and pathologic disorders are known and the therapy and prognosis are obvious. In agnogenic myeloid metaplasia the diagnosis may not always be established, but often one can, by hematologic methods (peripheral, sternal and splenic puncture), clinical examinations and later by microscopic studies of the spleen separate this entity from others simulating it. Levinson and Limarzi tell of a housewife aged 49 in whom agnogenic myeloid metaplasia of the spleen was diagnosed clinically. The essential clinical findings of this condition are insidious onset of progressive weakness, abdominal distress and enlargement of the spleen, with or without hemorrhagic tendency. The hematologic findings are characterized by a slightly elevated leukocyte count with the presence of immature red and white elements in the peripheral blood. A biopsy of bone marrow may show normal, hypoplastic or hyperplastic marrow with myeloid immaturity and no involvement of the myeloblastic tissue. The megakaryocytes are increased and present a normal dispersion. The spleen is enlarged and shows histologically fibrosis and myeloid metaplasia. There was no evidence of myeloid metaplasia in any of the organs other than the spleen.

American J. Digestive Diseases, Fort Wayne, Ind.

14:189-214 (June) 1947

Irritable Colon: Recognition and Management. P. B. Van Dyke.—p. 189.
Role of Vitamin Therapy in Management of Diabetes Mellitus. E. L. Sevringhaus.—p. 193.
Spontaneous Hyperinsulinism (Harris Syndrome): Survey of 28 Cases. W. Cane.—p. 195.
Explanation of Anal Pruritus. F. Hoelzel.—p. 200.
Pruritus Ani. N. B. Jaffe.—p. 202.
Evaluation of Antacid Activity of Protein Hydrolysate Using Graduated Doses in Human Stomach. Z. X. Rossien.—p. 205.
Addition of Casein to Mixed Protein Diet. R. A. Harte.—p. 208.

American Journal of Diseases of Children, Chicago

73:651-778 (June) 1947

*Kernicterus: Follow-Up Study of 35 Erythroblastotic Infants. R. Stiller. —p. 651.
Management of Whooping Cough: Special Reference to Infants. J. L. Kohn and A. E. Fischer.—p. 663.
*Familial Hypoplastic Anemia of Childhood: Report of 8 Cases in Two Families with Beneficial Effect. S. Estren and W. Dameshek.—p. 671.
Cardiac Complications in Salmonella Infections. B. H. Shulman.—p. 688.
Introduction to Problem of Prematurity. S. Z. Levine.—p. 694.
Prevention and Control of Infections. J. H. Hess.—p. 696.
Management of Emergencies. S. H. Clifford.—p. 706.
Feeding of Premature Infants. H. H. Gordon.—p. 713.

Kernicterus: Follow-Up on 35 Erythroblastic Infants.—Stiller says that, with the advent of knowledge concerning the pathogenesis and treatment of erythroblastosis fetalis, interest has been focused on the possible untoward effects of a successful therapeutic regimen that may result in a live but helpless infant with kernicterus. The term "kernicterus" was devised by Schmorl in referring to what Orth had called "nuclear jaundice." Among the records in the Children's Hospital in Washington from 1920 up to and including Dec. 31, 1945 there were 47 cases that appear to fit the pattern of erythroblastosis. An attempt was made to have the mother and child in these families typed and to ascertain the child's developmental status. The criteria for inclusion in this series were the typical pattern of an Rh-positive child born of an Rh-negative mother, with the presenting complaint of either neonatal jaundice or anemia. Of 35 for whom follow-up records were obtainable, 29 are still living and 6 have died. The necropsy reports of the 6 deaths failed to show correlation between the degree of clinical involvement of the central nervous system and the pathologic picture. Of the 29 living children 4 show signs of involvement of the central nervous system that may be interpreted as evidence of kernicterus. Two of these 4 showed evidence of involvement of the central nervous system in the neonatal period. None of the remaining 25 normal children showed such neonatal involvement. Transfusion therapy should be directed against the anemia and is of no value in ameliorating the damage to the brain that has already occurred.

Familial Hypoplastic Anemia of Childhood: 8 Cases in Two Families.—Estren and Dameshek present two families with familial hypoplastic anemia. Three of 7 siblings in the first family and 5 of 14 siblings in the second family had apparently identical disorders characterized by peripheral pancytopenia, pallor, weakness and a bleeding tendency. Hypoplasia of the marrow was present in those cases in which the marrow was examined. These are the first recorded instances in which hypoplasia of the marrow has been noted as the sole familial trait. The closest similar cases in the literature are those of Fanconi, in which hypoplasia of the marrow was one of several congenital and familial abnormalities. Familial hypoplastic anemia must be added to the other heredofamilial hematologic conditions. Splenectomy in 1 of the patients resulted in pronounced improvement. In cases of complete or almost complete aplasia of the marrow and in cases in which a reduction of blood platelets is accompanied by a reduction or absence of megakaryocytes in the marrow, splenectomy would not be of value. Splenectomy may be considered as offering a beneficial therapeutic result when megakaryocytes are present to some degree in the marrow, and particularly when lack of platelet production in the megakaryocytes can be demonstrated and the red cell elements show some evidence of regenerative activity.

American Practitioner, Philadelphia

1:575-630 (July) 1947

Common Meningitides: Diagnosis and Treatment. L. K. Sweet.—p. 575.
Pinworm Infection and Trichinosis. F. J. Brady.—p. 583.
Treatment of Some Intestinal Worm Infections. W. H. Wright.—p. 589.
Treatment of Ambulatory Chronic Cardiac Patient. W. S. Horn.—p. 591.
Medical Witness in Court: Expert Testimony. O. Hawkinson.—p. 595.
Id.: Abuses of Medical Testimony: Remedy; The Minnesota Experiment. E. W. Roemer.—p. 600.

Archives of Neurology and Psychiatry, Chicago

57:661-794 (June) 1947

*Loss of Axis Cylinders in Sclerotic Plaques and Similar Lesions. T. J. Putnam and L. Alexander.—p. 661.
Topographic Distribution of Lesions in Central Nervous System in Japanese B Encephalitis: Nature of Lesions, with Report of a Case on Okinawa. W. Haymaker and A. B. Sabin.—p. 673.
Electrocerebral Shock Therapy: Reconsideration of Former Contraindications. M. T. Moore.—p. 693.
Electroencephalographic Study of Electric Shock Therapy: Psychotic Patients Treated in a United States Naval Hospital. J. D. Moriarty and J. C. Siemens.—p. 712.
*Electroencephalographic Studies Following Electric Shock Therapy: Observations on 51 Patients Treated with Unidirectional Current. A. A. Weil and W. C. Brinegar.—p. 719.
Orientation to Forensic Psychiatry. H. A. Davidson.—p. 730.

Loss of Axis Cylinders in Sclerotic Plaques.—Putnam and Alexander call attention to the fact that different stains lead to contradictory observations on the damage to axis cylinders in sclerotic plaques. The ideal method of resolving the difficulty would be to find a stain which combines the best features of the technics which are found to give conflicting results. Such a method has recently become available: the Bodian stain, which depends on the reduction of a silver proteinate. Twenty-six blocks containing 31 distinct plaques were taken from embedded material from 7 cases of multiple sclerosis. Studies by means of the Bodian silver stain for axis cylinders showed that some degree of damage or destruction of axons occurred in all the sclerotic plaques investigated. In all but 2 of the plaques examined the axis cylinders were reduced to a small fraction of the normal number. The pathologic appearance of surviving axis cylinders was more striking in fresh plaques than in old ones. Similar changes of about the same degree of intensity were seen in some other lesions of vascular origin not sufficiently intense to cause complete necrosis. The evidence here presented is compatible with the point of view that the parenchymal lesions in multiple sclerosis are secondary to a local disturbance of circulation. It suggests that the conception of a specific process of demyelination peculiar to multiple sclerosis deserves revision. The fact that fibrous gliosis is not observed in the most acute lesions of multiple sclerosis suggests that the glial scar is secondary to the local destructive process. The fact that many axis cylinders are damaged in lesions of multiple sclerosis has also an important bearing on prognosis and treatment. The acute stage of swelling and distortion of axis cylinders seems to correspond to the acute stage often observed in symptoms. There seems to be little hope that treatment would increase the number of existing axis cylinders once the lesion is formed.

Electroencephalographic Studies Following Electric Shock.—In the 51 patients studied by Weil and Brinegar varying numbers of electric shock treatments were administered by a machine delivering unidirectional fluctuating current. Brain waves were recorded prior to treatment, four days after the last treatment and fourteen days thereafter. The highest percentage of abnormal records was obtained in manic-depressive patients, closely followed by that for the schizophrenic group. Patients with involutional psychoses and psychoneuroses demonstrated more normal preshock records. In general, an increase of abnormality in the electroencephalographic record was observed after treatment, but the electroencephalograms of a large percentage of patients receiving less than ten shock treatments had returned to normal fourteen days after the last treatment. The electroencephalographic changes seemed to be less pronounced after shock treatment when unidirectional current was used than when alternating current was used. Postshock electroencephalograms closely resembled the records of epileptic patients. The following clinical relationships between various changes in the brain waves and the psychiatric picture were found: (*a*) An abnormal preshock electroencephalogram usually indicated that a longer course of treatment was necessary in order to achieve clinical improvement. (*b*) A highly abnormal electroencephalographic record fourteen days after the last treatment was usually found with patients requiring further hospitalization. (*c*) A normal preshock electroencephalogram promised a better clinical result from electric shock treatment than an abnormal preshock record.

Blood, New York

2:311-406 (July) 1947

Development of Inclusion Bodies Containing Ribose Nucleic Acid in Myeloma Cells After Injections of Stilbamidine Determination of Stilbamidine in Myeloma Tissue. I. Snapper, A. E. Mirsky, B. Schneid and M. Rosenthal.—p. 311.
Anemia of Infection: VI. The Influence of Cobalt on Anemia Associated with Inflammation. M. M. Wintrobe, M. Grinstein, J. J. Dubash, S. R. Humphreys, Helen Ashenbrucker and Wanda Worth.—p. 323.
Monocytic Leukemia: Case Report Illustrating Variations in Clinical Picture. A. E. Rappoport and V. H. Kugel.—p. 332.
Electrocardiographic Findings in Leukemia. S. F. Aronson and Elie Leroy.—p. 356.
Serum Protein Changes in Myelogenous and Lymphocytic Leukemias and Hodgkin's Disease. G. A. Nitshe Jr. and P. P. Cohen.—p. 363.
Improved Demonstration of Circulating Antibodies in Hemolytic Anemia by Use of a Bovine Albumin Medium. J. Neber and W. Dameshek.—p. 371.

Canadian Journal Public Health, Toronto

38:261-310 (June) 1947

Presidential Address. A. R. Foley.—p. 261.
State of Health of the People of Canada in 1945. H. A. Ansley and J. T. Marshall.—p. 269.
*Increased Efficiency of Diphtheria Toxoid When Combined with Pertussis Vaccine: Preliminary Note. L. Greenberg and D. S. Fleming.—p. 279.
*Retention of Ascorbic Acid in Canned Fruit Juices and Tomatoes During Storage After Opening. H. D. Branion and C. R. Cameron.—p. 283.
Experience with Salmonella Typing in Canada. L. E. Ranta and C. E. Dolman.—p. 286.

Diphtheria Toxoid and Pertussis Vaccine.—Greenberg and Fleming found evidence in experiments on guinea pigs that the addition of pertussis vaccine to diphtheria toxoid enhances the immunizing power of the latter. Quantitative determinations demonstrated that as the numbers of pertussis organisms are increased the immunizing efficiency of the diphtheria toxoid also is increased. The concentrations of pertussis organisms usually found in commercial preparations increased the immunizing efficiency of the toxoid at least twofold.

Retention of Ascorbic Acid in Canned Fruit Juices During Storage After Opening.—Branion and Cameron found that the loss of ascorbic acid from fortified apple juice is greater than from tomato juice, tomatoes or grapefruit juice during storage in open containers either at room temperature or in a refrigerator. Loss of ascorbic acid from tomato juice, tomatoes and grapefruit juice under the same conditions was negligible for twenty-four hours' storage and was small up to forty-eight hours, particularly during storage in the refrigerator.

Canadian Medical Association Journal, Montreal

57:1-94 (July) 1947

Clinical Depressions. G. L. Adamson.—p. 1.
Stuttering: Problem and Physician's Responsibility. W. R. Love.—p. 4.
Hiatus Hernias: (New Method of Demonstrating Hiatus Hernias Radiologically). J. Bloom.—p. 9.
Esophageal Hiatus Hernia. J. G. Stapleton.—p. 13.
Ankylosing (Marie-Strümpell) Spondylitis: (An Analysis of 100 Cases). W. Graham and M. A. Ogryzlo.—p. 16.
Apical Lung Tumors. P. H. Malcolmson.—p. 21.
Effect of Amino Acids on Gastric Acidity. J. Feller and C. J. Tidmarsh.—p. 23.
Papaverine in Treatment of Neurotic Symptoms. J. S. Tyhurst.—p. 25.
Nutritional Disturbances and Oral Use of Amino Acids in Infants. M. Langlois.—p. 31.
Interpretation and Significance of False Positive Serologic Reactions for Syphilis. H. H. Lubinski.—p. 33.
Influenzal Meningitis: Report of 3 Nonfatal Cases. D. Magner, H. Wood and Marion M. Coakwell.—p. 35.
*Backache and Fibrositis: Medical Point of View. W. R. Caven.—p. 37.
*March Hemoglobinuria. A. M. Bell.—p. 43.
Surgery of the Sympathetic System. U. Gariepy.—p. 47.
Simplified Plan of Prescribing for Adult Diabetes. D. M. Baltzan.—p. 54.

Backache and Fibrositis.—According to Caven, fibrositis is the name given to a condition that produces in certain susceptible individuals small nodules in the connective tissue; these are sometimes painful or may give rise to referred pain or may be only tender to the touch. It is probably the most common cause of pain in the large group of individuals who suffer from so-called rheumatic conditions. Some authors speak of fibrositic nodules and others, mostly English, of rheumatic nodules. In the English literature fibrositis is usually grouped with rheumatic conditions, in which are also included various types of arthritis. The author thinks that fibrositis should be kept separate from these conditions, as there is no evidence of infection. The predisposing causes have been listed as sudden strain, wear and tear, chill, worry, poor posture and lack of use of certain groups of muscles. The essential pathology of fibrositis is now well known, as Stockman has described the changes in the white fibrous tissue of the muscles, nerves and fascia as being due to edema with serofibrinous exudation; in this the fibroblasts proliferate rapidly, numerous minute new blood vessels appear and the whole forms a soft, ill defined, congested little swelling. The author regards fibrositis as one of the most common causes of backache and of pains referred to the back. Along with fibrositis there usually exists some muscle spasm. Physical therapy is most important in the treatment. In the acute case with sudden onset, heat and rest with the use of analgesic drugs may be necessary for the first few days before massage can be used. In the more chronic cases manipulation and deep massage can be used from the start. The essential part of treatment is to stretch the tissues involved, by some means or other, either by traction when that is possible or by firm massage directly on the tender nodules. Before any manipulative treatment is undertaken it is wise to have x-ray films made of the spine to rule out abnormal bone conditions. The author describes manipulations to be carried out by the physician and exercises to be done by the patient.

March Hemoglobinuria.—Bell defines march hemoglobinuria as the condition in which free hemoglobin appears in the urine during and after erect exercise, such as running and marching. This hemoglobinuria is preceded by an elevation above normal of the free hemoglobin in the blood. A youth aged 18, who exhibited the syndrome of march hemoglobinuria for almost three months, was under observation during the last two. The history, negative Wassermann reaction and inability to produce a paroxysm when exposed to chilling, as well as the remission, ruled out any other type of paroxysmal hemoglobinuria. The presence of food in the upper digestive tract as long as three hours after its ingestion was a factor in the development of the paroxysms. When the upper digestive tract was empty, that is, seven or more hours after a meal, erect exercise did not precipitate symptoms. Erect exercise caused the appearance or the increase of albuminuria at all times. No theory can be formulated to explain why an apparently normal young man should suddenly exhibit for three months hemoglobinemia, hemoglobinuria, albuminuria and abdominal distress after walking for thirty minutes. Nor can any explanation account for the fact that for at least part of the three months the appearance of these symptoms depended on the presence of food in the upper digestive tract.

Connecticut State Medical Journal, Hartford

11:425-498 (June) 1947

Convocation of the Society, 155th Annual Meeting, Address of the Retiring President, Cole B. Gibson.—p. 427.
Newer Therapy for Epilepsy. Margaret Lennox.—p. 432.
Physiologic Reaction to Radioactive Isotopes. S. Warren.—p. 434.
State Planning for Rural Medical Services. N. H. Gardner.—p. 436.
Malaria Complicating Appendicitis: Case Report. J. C. Woodward.—p. 438.
Cancer of Face: Remarks on Present Day Treatment.—p. 439.
Doctors Have Added Responsibilities. V. P. Hippolitus.—p. 442.
Connecticut and the Founding of the American Medical Association. S. B. Weld.—p. 445.

Delaware State Medical Journal, Wilmington

19:77-108 (May) 1947

Governor Bacon Health Center at Delaware City: New Approach for Rehabilitation of Children and Adults. M. A. Tarumianz.—p. 77.
Role of Emotions in Disease. F. M. Harrison.—p. 79.
Observations on Importance of Time in Etiology of Psychopathology. E. J. Koch.—p. 84.
Trends in Mental Hygiene. J. A. Doering.—p. 87.
Reflex Tremor: Special Form of Reflex Dyskinesia. G. J. Gordon.—p. 90.
Homosexual Prostitution: Case Report.—p. 92.
Group Psychotherapy: Aid to Diagnosis and Treatment. W. C. Adamson.—p. 94.
Objective Measurement of Reality Perceptions in Dementia Precox. J. Jastak and E. Stubbs.—p. 98.

Journal of Clinical Investigation, Boston

26:355-590 (May) 1947. **Partial Index**

Distribution of Ascorbic Acid in Blood. J. H. Roe, C. A. Kuether and Ruth G. Zimler.—p. 355.
Factors Concerned in Circulatory Failure of Adrenal Insufficiency. A. P. W. Clarke, R. A. Cleghorn, J. K. W. Ferguson and J. L. A. Fowler.—p. 359.
Effect of Blood Protease and Trypsin Inhibitor on Clotting Mechanism. A. J. Glazko.—p. 364.
Study of Distribution and Fate of Antimony When Used as Tartar Emetic and Fuadin in Treatment of American Soldiers with Schistosomiasis Japonica. S. W. Lippincott, L. D. Ellerbrook, M. Rhees and P. Mason.—p. 370.
Penicillin Resistant Staphylococci: Mechanisms Involved in Development of Resistance. W. W. Spink and Viola Ferris.—p. 379.
Physiologic Action of Clostridium Welchi (Type A) Toxins in Dogs. P. C. Zamecnik, I. T. Nathanson and J. C. Aub.—p. 394.
*Serologic Studies on Influenza During a Nine Month Period. S. S. Kalter and O. D. Chapman with the technical assistance of Catherine Burkhart.—p. 420.
*Comparative Action of Acetyl-Beta-Methyl Choline and Histamine on Respiratory Tract in Normals, Patients with Hay Fever and Patients with Bronchial Asthma. J. J. Curry.—p. 430.
Effect of Orally and Intravenously Administered Amino Acid Mixtures on Voluntary Food Consumption in Normal Men. C. J. Smyth, A. G. Lasichak and S. Levey.—p. 439.
*Minimum Dosage of Thiourea, Given Together with Iodine Medication, Necessary for Production and Maintenance of a Remission in Hyperthyroidism. A. W. Winkler, E. B. Man and T. S. Danowski.—p. 446.
Studies on Gangrene Following Cold Injury. J. M. Crismon and F. A. Fuhrman.—p. 468.
Studies of Thermal Injury. R. McLean, A. R. Moritz and A. Roose.—p. 497.
Studies of Breathing, Pulmonary Ventilation and Subjective Awareness of Shortness of Breath (Dyspnea) in Neurocirculatory Asthenia, Effort Syndrome, Anxiety Neurosis. M. E. Cohen and P. D. White.—p. 520.
Traumatic Shock. A. M. Seligman, H. A. Frank and J. Fine.—p. 530.
Studies of Congenital Heart Disease. L. Dexter, F. W. Haynes, C. S. Burwell, E. C. Eppinger, R. E. Seibel and J. M. Evans.—p. 547.
Bacteriologic Study of Factors Affecting the Efficacy of Streptomycin Therapy of Urinary Tract Infections. G. T. Harrell, E. G. Herndon Jr., C. M. Gilikin and J. K. Aikawa.—p. 577.

Serologic Studies on Influenza.—Studies described by Kalter and Chapman were designed to ascertain the approximate time of the appearance of epidemics or an indication of their approach by preepidemic increases in serum antibodies, to determine the nature of the epidemic in this area, to determine the effect of vaccination and to determine what antibody titers may be expected in presumably normal persons. The epidemic in the area studied was due to influenza B. This virus was present for several months before the actual outbreak. Recognition of the preepidemic period makes it possible to employ the vaccines early enough. Vaccination results in an antibody increase lasting in most cases for at least five months. Vaccines should then be administered in the fall of the year in order to prevent infection. Serologic studies are of value in (*a*) deter-

mining the etiologic agent, (*b*) ascertaining the duration of antibody titers and (*c*) estimating the approximate time for administration of vaccines. These tests may be used by the laboratory to ascertain the etiology of this type of respiratory infection.

Comparative Action of Mecholyl Chloride and Histamine.—The reaction of the tracheobronchial tree, measured chiefly by changes in the vital capacity, to mecholyl chloride administered intramuscularly in doses of 0.25 to 6.0 mg. was determined by Curry in 10 normal subjects, 11 patients with uncomplicated hay fever and 27 patients with active bronchial asthma or a history of asthmatic attacks. In the latter two groups the reaction was compared with that due to parenteral histamine administered chiefly by the intravenous route in doses of 0.02 to 0.04 mg. of the base. In the normal group 3 subjects had a slight reduction in vital capacity after the intramuscular injection of 6 mg. of mecholyl chloride, though all noted a feeling of tightness in the chest. All the patients with hay fever had a slight reduction in vital capacity following the administration of 6 mg. of mecholyl chloride intramuscularly, and in 7 cases the reduction was 5 per cent or greater. By contrast, in the latter group the intravenous administration of 0.02 to 0.03 mg. of histamine base caused a reduction in vital capacity in 6 of 11 subjects, but in only 2 cases was the decrease 5 per cent or greater. In the 27 subjects with bronchial asthma all had a reduction in vital capacity after the intramuscular injection of from 1 to 6 mg. of mecholyl and in only 1 instance was the decrease less than 5 per cent. On the other hand, following the administration of parenteral histamine, 23 subjects had a reduction in vital capacity, and in 22 of these cases the reduction was 5 per cent or greater. It appeared that patients with hay fever and asthmatic subjects were more reactive to mecholyl chloride than to histamine and that both drugs acted by different mechanisms on the hyperresponsive respiratory tract of these persons.

Thiourea Plus Iodine in Hyperthyroidism.—According to Winkler and his associates the thyroid depressant effect is enhanced if thiourea is used in combination with strong solution of iodine. He cites facts which suggest that the dosage initially employed was unnecessarily large. The present study arose from an attempt to avoid hypothyroidism by the use of the minimimum effective dose of thiourea. Effects of small doses of thiourea, 0.075 to 0.015 Gm. daily, together with iodine solution in inducing and maintaining a remission in hyperthyroidism were studied. Doses of thiourea as small as 0.07 Gm. daily, in conjunction with iodine solution, produced a remission in hyperthyroidism with considerable regularity. The remission in hyperthyroidism can usually be maintained by the use of 0.05 to 0.025 Gm. of thiourea daily in addition to iodine solution. Withdrawal of thiourea, even when the maintenance dose is as low as 0.025 Gm., is frequently followed by exacerbation of previously controlled hyperthroidism. Control of hyperthyroidism with iodine solution alone is only rarely possible, with or without previous thiourea treatment. Prolonged, and perhaps indefinite, maintenance on thiourea and iodine is necessary to prevent recrudescence of hyperthyroidism.

Journal of Pediatrics, St. Louis

30:645-768 (June) 1947

Clinical Use of Hyaluronidase in Hypodermoclysis. O. Hechter, S. K. Dopkeen and M. H. Yudell.—p. 645.
*Lung Calcifications and Histoplasmin-Tuberculin Skin Sensitivity. L. W. Sontag and J. E. Allen.—p. 657.
Cephalin-Cholesterol Flocculation in Premature Infants and Children Receiving Immune Globulin. G. E. Prince.—p. 668.
Measuring the Specific Gravity of Small Amounts of Urine: Rapid and Simple Method. I. Dogramaci.—p. 672.
Relationship of Weight and Length of Infants at Birth to Age at Which They Begin to Walk Alone. Mildred A. Norval.—p. 676.
Atresia of Ileum: First Successful Case Cured by Enterostomy Alone. J. R. Judd.—p. 679.
*Sexual Precocity and Accelerated Growth in Child with Follicular Cyst of Ovary. G. C. Kimmel.—p. 686.
Congenital Thrombocytopenic Purpura. Janet Talmadge and B. Berman.—p. 691.

Lung Calcification and Histoplasmin Tuberculin Skin Sensitivity.—Sontag and Allen report investigations of serial chest x-ray and histoplasmin-tuberculin sensitivity reactions in 170 essentially "normal" southwestern Ohio children. They applied haplosporangin and blastomycin skin tests to thirty-three children with positive calcification and negative skin reactions. They reemphasize the findings of other investigators that a far greater number of children are sensitive to histoplasmin than to tuberculin and that the incidence of pulmonary calcification is much more closely associated with the incidence of histoplasmin sensitivity than with tuberculin sensitivity. There is a much closer association between the onset of the calcification and the development of histoplasmin sensitivity than between calcification and the development of tuberculin sensitivity. A considerable number of calcifications occur in children negative to both histoplasmin and tuberculin. One of these was associated with a positive blastomycin test and one with positive haplosporangin plus a positive blastomycin test. In this series there is a tendency for familial distribution of positive lung calcifications, but not of positive histoplasmin skin reactions. The majority of the calcifications in this study have their soft tissue changes before 48 months of age. Many of these can be traced back to the early months of life. Infiltrates and occasional round areas of consolidation are the precursors of the calcifications in the parenchyma. Progressively appearing new lesions followed by new calcifications both in parenchyma and in hilus are often seen in histoplasmin positive children over a period of several years.

Sexual Precocity and Accelerated Growth of Child with Follicular Cyst.—Kimmel observed a girl aged 2 months in whom the presenting complaint was vaginal bleeding. There was hypertrophy of the breasts and nipples, with quite prominent pigmentation about the nipples. The labia minora were moderately enlarged. Combined rectoabdominal examination revealed a moderately enlarged uterus. The child was very tall for her age, her height being 39½ inches (94 cm.), 5 inches (12.7 cm.) taller than the average. A tentative diagnosis of granulosa cell tumor of the ovary was made. At operation the right ovary was found to consist chiefly of a cyst 4 by 3 cm. in diameter, which had destroyed most of the ovarian tissue. A right salpingo-oophorectomy was performed. There was no evidence of a granulosa cell tumor, but it was assumed that sufficient estrogen to cause the changes noted might have been produced by granulosa cells which lined the cyst. It has now been four years and four months since the cyst was removed. The patient has been seen several times during this period. There has been no recurrence of vaginal bleeding, and the labia, uterus and breasts have regressed to normal size. A search of the literature revealed only 2 previously reported cases similar in some respects to the case reported here.

Journal of Urology, Baltimore

58:1-96 (July) 1947

*Biologic Assay of Human Kidney Tumors by Means of Heterologous Ocular Transplantations: Study of Clear Cell Carcinoma, Granular Cell Carcinoma and Papilliferous Epithelioma of Kidney. M. H. Masina.—p. 1.
Malignancy of Kidney, Survey of 195 Cases. A. P. Graham.—p. 10.
Ureteral Anastomosis: Experimental Studies: Preliminary Report. A. Davalos.—p. 22.
*Solution of Vesical Calculi. D. J. Abramson.—p. 29.
*Streptomycin in Successful Treatment of Tuberculosis of Urinary Bladder: Report of 2 Cases. F. H. Redewill.—p. 35.
Oliguria Following Transurethral Resection of the Prostate Gland. W. L. McLaughlin, J. B. Holyoke and J. P. Bowler.—p. 47.
Radical Perineal Prostatectomy for Carcinoma. J. K. Ormond.—p. 61.
Use of Bladder Mucosa in a One Stage Repair of Hypospadias. J. Memmelaar.—p. 68.
One Stage Operation for Correction of Mild Hypospadias with Chordee. A. Nahoum.—p. 74.
Method of Meatotomy. O. Grant and R. Lich Jr.—p. 77.
Sulfadiazine: Effect on Spermatogenesis and Excretion in Ejaculate. R. S. Osenkop and J. MacLeod.—p. 80.
Improved Method for Semen Analysis. E. J. Farris.—p. 85.
Simple Method for Determination of Serum Acid Phosphatase. P. B. Hudson, H. Brendles and W. W. Scott.—p. 89.

Biologic Assay of Human Kidney Tumors by Heterologous Ocular Transplantation.—This investigation by Masina is an attempt at biologic assay of some of the tumors of the human kidney encountered by the urologist. Studies were made on 1 papilliferous epithelioma of the renal pelvis from a man aged 37, 1 clear cell carcinoma from a woman aged 61, and 1 granular cell carcinoma from a man aged 60. The specimens for transplantation were obtained in the operating room, were transported to the laboratory under sterile precautions and immediately transplanted into the anterior chamber of the eyes

of a series of male and female guinea pigs. These three different types of tumors display in heterologous ocular transplantation activities of their cells which may greatly modify previous concepts concerning the evaluation of the degree of malignancy solely in terms of morphology of the tumor cells. It was disclosed that the relatively benign papilliferous epithelioma can be heterologously maintained, whereas the highly malignant granular type gave negative results, a feature which was unexpected. The cytologic evidence of transition of clear cell type toward granular cell variety suggests that the clear cell carcinoma may be a precursor of the granular cell, and the formation of granules in the clear cells may possess some endocrine function that may initiate in the patient a chain of interrelated biologic phenomena responsible for the clinicopathologic manifestations displayed by the granular cell carcinoma of the kidney in the human subject, a sequence which is not initiated in the guinea pig. The absence of this sequence may be responsible for negative results with the transplantation of the granular cell carcinoma, as also for the absence of metastases throughout the series.

Solution of Vesical Calculi.—Abramson reports that the bladder calculi of 7 patients detected among 35 paraplegic patients responded by disintegration to irrigations with solution G. The time necessary to dissolve the bladder calculi ranged from six to forty-four days, the average being fourteen days. The method of treatment is outlined.

Streptomycin in Treatment of Tuberculosis of Urinary Bladder.—Redewill reports that 2 patients with tuberculosis of the urinary bladder responded to treatment with streptomycin. The development of bacterial resistance to streptomycin can be avoided by administering parenterally no less than 800,000 units of the drug in eight doses three hours apart each twenty-four hours. It was also found that streptomycin will check the tendency of tubercle bacilli developing increased resistance if penicillin is administered along with streptomycin. Penicillin alone has no demonstrable effect on tubercle bacilli, but when given with streptomycin, it enhances the bacteriostatic effect. The first of the 2 patients was started on 100,000 units of penicillin in beeswax and peanut oil daily by injection and sulfathiazole by mouth. Streptomycin was administered both parenterally (800,000 units daily) and by bladder iontophoresis twice a week. After six weeks of treatment the bladder was normal and the patient was declared apparently cured. The follow-up disclosed no recurrence of bladder symptoms. In the second patient cystitis and ulceration cleared in eight weeks. This patient also had incipient tuberculosis of the right kidney and involvement of the left seminal vesicle and epididymis, all of which apparently cleared under streptomycin treatment. Treatment with quartz light is an important adjunct. Redewill describes a modification of the Caulk intravesical application of ultraviolet light.

New York State Journal of Medicine, New York

47:1313-1438 (June 15) 1947

*Clinical Use of Products of Human Plasma Fractionation. C. A. Janeway.—p. 1357.
Use of Tridione in Treatment of Convulsive Disorders. D. J. Simons.—p. 1363.
Sclerosing Therapy of Varicose Veins with Sotradecol (Sodium Tetradecyl Sulfate). S. R. Hirschman.—p. 1367.
*Androgenic Arrest of Familial Enuresis: Study in 75 Children. I. N. Kugelmass.—p. 1369.
*Ocular Findings in 128 Juvenile Diabetics. I. Givner and Catherine Lodyjensky.—p. 1371.
Experiences in Infant Feeding with Administration of Cereal Containing Papaya Fruit. Elizabeth J. Ittner.—p. 1373.
Attempt to Unify Current Theories of Renal Lithiasis. R. U. Whipple.—p. 1375.
Sensory Polyneuritis: Common Postgrippal Syndrome. E. Hollander.—p. 1378.
Anemia in Indigent Blood Donors. I. S. Eskwith and R. S. Kroll.—p. 1380.
Evaluation of Anginal Pain in Various Stages of Coronary Artery Disease, Particularly the Premonitory Phase of Coronary Occlusion and Infarction Without Occlusion. H. L. Jaffe, H. Halprin and L. M. Nelson.—p. 1383.

Products of Plasma Fractionation.—Janeway shows that separation of blood into its functional components makes it possible to accomplish many therapeutic purposes. For instance, if the plasma from 8 pints is fractionated, there is obtained two 25 Gm. bottles of albumin, several packages of blood grouping globulins, twelve 5 cc. vials of gamma globulin, several packages of fibrin foam and film, an excess of thrombin and ultimately, it is hoped, a number of other useful products. In addition, important tools have been secured for the study of disease. It has been possible to do things which could not be done with whole blood. By giving albumin it is possible to raise the patient's serum albumin level and by that means we have learned a lot about the control of water balance in liver disease and we are learning something about nephrosis, in which albumin is probably not the answer to the problem. The problem arises as to how these agents are to be secured. They were developed for the army and navy but not for civilian use, although certain surplus products, dried plasma and gamma globulin are being distributed by the Red Cross. In Massachusetts and Michigan the Red Cross is cooperating in getting donors. Blood is collected by the states and is processed in the states' own laboratories. It is planned to distribute whole blood, resuspended red cells, plasma, albumin, gamma globulin and the whole range of blood derivatives at public expense. It is to be hoped that programs will be developed in different parts of the country, each best suited to the facilities and needs of the area.

Androgenic Arrest of Familial Enuresis.—Kugelmass studied 75 children with familial enuresis with and without emotional and training difficulties because they failed on all forms of therapy. Boys predominated in this group (3 to 1) probably because of their greater difficulty in learning bladder control. Treatment consisted in the administration of methyl testosterone 10 to 30 mg. daily in divided doses for one to three months. If oral administration produced no significant improvement within a fortnight, it was supplemented with intramuscular administration weekly of 10 mg. of testosterone propionate. Fluid intake was restricted except for milk morning and noon, cracked ice between meals, and rinsing of the mouth with water to quench thirst. Mothers were advised to remain unemotional about wetting episodes, because parental anxiety has an untoward influence on the child's psyche. Fifty-nine children were cured, 10 were improved and 6 failed to benefit from this treatment.

Ocular Findings in Diabetic Children.—In routine fundoscopy of 128 diabetic children, Givner and Lodyjensky found 3 who had retinal hemorrhages and 1 a diabetic cataract. Since none of the patients had complaints referable to vision, and since the importance of retinal hemorrhages in regard to a better evaluation of the case has been emphasized, it would seem good practice to study every diabetic patient under a mydriatic. Special emphasis should be put on pinpoint hemorrhages and aneurysmal capillary dilatations, as they can be overlooked easily.

Texas State Journal of Medicine, Fort Worth

43:163-238 (July) 1947

Some Problems in Field of Medical Economics. H. H. Shoulders.—p. 168.
Clinical Indications for Streptomycin Based on U. S. Army Experiences. E. J. Pulaski.—p. 174.
Problem of Chagas' Disease in Texas. A. Packchanian.—p. 179.
*Early Ambulation of Postoperative Cataract Patients. S. C. Smith.—p. 183.
Mild Hypothyroidism in Children. S. R. Kaliski.—p. 186.

Early Ambulation After Cataract Operation.—Smith says that although the early ambulation of postoperative cataract patients is a departure from the conventional, this procedure was carried out on a series of 60 nonselected patients during 1946 with results comparable to those obtained with prolonged bed rest and quiet. In all these cases a monocular dressing was applied immediately after surgery, and the patients were allowed out of bed in from sixteen to twenty hours later. The nursing problem was practically nil. The patients for the most part looked after themselves, and because of the monocular dressing the hysterical problem sometimes seen was not encountered. The fact that no iris prolapses ensued and that the anterior chamber quickly reformed, and for the most part stayed reformed, may be attributed to the high conjunctional flap and the excellent coaptation of the limbal wound obtained by the Daily scleral conjunctival technic.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Annals of Rheumatic Diseases, London

6:1-64 (March) 1947

X-Ray Appearances in Chronic Rheumatism. G. D. Steven.—p. 1.
*Intestinal Extract in Rheumatic Diseases. A. Renshaw.—p. 15.
Psychosomatic Nonarticular Rheumatism. E. P. Edmonds.—p. 36.

Intestinal Extract in Rheumatic Diseases. — Renshaw found in postmortem examinations that atrophy of the small intestine was often severe in patients with rheumatic disorders. He decided to test the effect of extract of intestinal mucosa. Enzyme specialists agreed to prepare an extract of intestinal mucosa rich in erepsin. The resulting product was presented in enteric coated capsules for oral administration. These were designed to release their contents one hour after being swallowed. Since the hydrochloric acid of the gastric juice would inactivate the enzymes, an interval of two and a half hours after food seemed to be the optimal time for administration; this would allow the intact capsule to pass into the duodenum, there to dissolve and liberate its contents for subsequent action in an alkaline medium. Treatment of patients with this extract have now been proceeding for seven years. Most types of rheumatic disease have been treated—rheumatoid arthritis, osteoarthritis, fibrositis, synovitis, intermittent hydrarthrosis, acute and subacute rheumatism and spondylitis. Among over 700 cases treated by the writer personally, good results have been obtained in rheumatoid arthritis, osteoarthritis and fibrositis. Also some intractable cases of ankylosing spondylitis and Still's disease have responded to this therapy. The beneficial effects observed as a result of the administration of the intestinal extract in various rheumatic conditions would appear to indicate a common factor underlying all and to support the idea of a rheumatic diathesis. This rheumatic diathesis may be a constitutional state of the tissues, inherited or acquired, as a result of which such tissues are more vulnerable to the action of toxins, bacterial invasion or trauma, and the ill effects of which are further aggravated by defects in intestinal digestion and assimilation.

British Journal of Radiology, London

20:261-300 (July) 1947

Radiotherapist and Cancer Patient (Presidential Address). D. W. Smithers.—p. 261.
Symposium: Radiation Necrosis. A. H. McIndoe, R. Forbes and B. W. Windeyer.—p. 269.
Radiation Doses Received by Skin of Patient During Routine Diagnostic X-Ray Examinations. J. H. Martin.—p. 279.
Two Diagrams for Computation of Dosage Rates from Linear Radium Sources. F. Bush.—p. 284.
Early Radiologic Diagnosis of Ankylosing Spondylitis. G. L. Rolleston.—p. 288.

British Medical Journal, London

1:913-958 (June 28) 1947

Recent Advances in Physiology of Vision: Part II. H. Hartridge.—p. 913.
Complete Removal of Prostate: Preliminary Communication. H. S. Souttar.—p. 917.
*New Euphoriant for Depressive Mental States. G. T. Stockings.—p. 918.
Type I Triple Cardiac Rhythm in Normal Hearts: Study of 1,360 Naval Recruits and Personnel. P. J. O'Meara.—p. 923.
Severe Erythema Multiforme. I. B. Sneddon.—p. 925.

New Euphoriant for Depressive Mental States.—Stockings believes that the syndrome of thalamic dysfunction, or neurotic depression, is frequently encountered in general practice and is often one of the most intractable. The commonest forms of the condition are the chronic neurotic depressions, anxiety states, reactive and hysterical depressions, and obsessional disorders. The depressions of later life, in which the dysphoria is unaccompanied by hallucinosis, delusions and other gross psychotic symptoms may also be included in this group. The essential feature of these disorders is that the perception threshold for unpleasant affects and sensory impressions is lowered, while that for pleasant sensation is correspondingly raised—the anhedonic or dysphoric syndrome. Although it is generally believed that these conditions are psychogenic in origin, there is evidence that the basis of the condition is primarily a disturbance of the thalamic-hypothalamic mechanisms, possibly a metabolic disorder. During the last century attempts were made to utilize the euphorigenic properties of cannabis in the treatment of depressive states, but these were found to be unsatisfactory. The discovery of the new synthetic cannabis-like derivatives of the dibenzopyran class has given new types of euphoriant drugs. One of the most active pharmacologically is the synthetic hexyl analogue called synhexyl, pyrahexyl or parahexyl. The drug was given to 50 patients showing the thalamic dysfunction syndrome. The dosage employed varied from 15 to 90 mg., the drug being administered on rising in the morning. Thirty-six showed improvement, while 14 were unaffected or made worse. Of the 6 illustrative cases, 4 were dysoxic (psychotic-depressive) and 2 were examples of simple thalamic dysfunction (neurotic depression).

Lancet, London

1:895-934 (June 28) 1947

Progress and Present Aspects of Medical Science. L. Whitby.—p. 895.
*Nitrogen Mustards in Hodgkin's Disease: Report on 21 Cases and 4 of Other Reticuloses. M. I. R. ApThomas and H. Cullumbine.—p. 899.
Glycosuria in Recruits: Incidence and Classification. Joyce A. Keeping and R. D. Lawrence.—p. 901.
Laboratory Diagnosis of Intestinal Amebiasis. K. R. Hill.—p. 903.
Intrapleural Hemorrhage Following Artificial Pneumothorax Refills. A. K. Miller and L. R. J. Rinkel.—p. 906.
Penicillin in Surgical Treatment of Pasteurella Sinusitis. Eileen O. Bartley and K. Hunter.—p. 908.
Survival of Baby Weighing 24 Ounces at Birth. J. P. Bush.—p. 909.
Plasmacytoma of Pancreas and Duodenum Causing Acute Intestinal Obstruction. Angela Hefferman.—p. 910.

Nitrogen Mustards in Hodgkin's Disease.—ApThomas and Cullumbine say that the effects produced by nitrogen mustards in animals are similar to those caused by x-rays and that for this reason it was assumed that they might prove useful in the treatment of malignant disease. Reports by American authors induced them to try nitrogen mustards in treating 25 patients, 21 of whom had Hodgkin's disease in an advanced stage, some recurrent after radiotherapy, and 4 had other reticuloses. The diagnosis in all cases was confirmed by biopsy. On the basis of the results obtained the authors conclude that the nitrogen mustards are useful in the palliative treatment of extensive Hodgkin's disease, the manifestations of which are consistently diminished. The symptoms can still be alleviated by nitrogen mustard in cases in which radiotherapy has been abandoned. Leukopenia seems to be the limiting factor as far as dosage is concerned. The tris form of the drug has shown no better results than has the bis compound. Diminution of leukocytes and of platelets is more severe after the tris form. Radiotherapy is to be preferred as a first treatment in Hodgkin's disease; for, though the improvement with x-rays is slower, it is maintained longer and the side effects are less serious.

Medical Journal of Australia, Sidney

1:745-772 (June 21) 1947. **Partial Index**

Histamine and Phosgene Poisoning. E. R. Trethewie.—p. 746.
*Incidence of Tuberculous Infection in Male Medical Students in Melbourne: Preliminary Report. T. E. Lowe and K. H. Hallam.—p. 749.
*Tuberculosis Infection in Nurses. D. Anderson.—p. 752.
Victoria's Tuberculosis Problem. H. M. James.—p. 754.

Incidence of Tuberculosis in Male Medical Students.—Lowe and Hallam report a survey to determine the incidence of skin sensitivity to tuberculin and the incidence of active pulmonary tuberculosis in medical students. No difference in the proportion of positive skin reactors is found between medical students in the preclinical years and the general university population of the same age. A significant increase in the proportion of positive skin reactors is seen in medical students at the end of their clinical years. No case of active pulmonary tuberculosis was found among medical students in their preclinical years, but an incidence at least four times as high as that in the general population occurred among these students during their clinical years.

Tuberculosis in Nurses.—Anderson applied the intracutaneous tuberculin test to nurses at eleven hospitals of the New South Wales. He was able to report the reactions in 2,705 nurses. Tables and graphs indicate that the rate of infection is greater in nurses than in other young women. It may be inferred that the nursing of tuberculous patients in the general

hospital in special wards pays good dividends in the protection of nurses from infection. Removal of tuberculous patients from the general wards was followed by a lessening of the frequency with which nurses became infected during their training.

Proceedings of Royal Society of Medicine, London

40:419-484 (June) 1947

Isolated Oculomotor Palsy Caused by Intracranial Aneurysm. G. Jefferson.—p. 419.
Rheumatic Diseases: Challenge and Opportunity. H. Cohen.—p. 443.
Clinical Science in Light of History. A. P. Cawadias.—p. 543.

Nordisk Medicin, Gothenburg

34:951-1014 (April 25) 1947

*Causes of Hemoptysis. A. Aanonsen.—p. 951.

Hospitalstidende

Phenylpyruvic Oligophrenia. Frida Lassen.—p. 955.

Hygiea

Changes in Electrocardiogram During Sleep and in Fatigue. B. Bjerner and O. Steinwall.—p. 967.
Development, Diagnosis and Treatment of Anal and Rectal Atresia. E. Landelius and O. Morales.—p. 972.

Svenska Läkaresällskapets Förhandlingar

*Eczema in Infants from Pediatric and Dermatologic Points of View. A. Wallgren.—p. 976.
Modern Analyses of Blood Proteins. B. Olhagen.—p. 992.

Causes of Hemoptysis.—Aanonsen reports that in 112 out of 275 patients from Ullevål Hospital admitted on the diagnosis of hemoptysis the cause was pulmonary tuberculosis; 88 had active tuberculosis, and in 33 of these the hemoptysis had led the patient to seek medical attention. Among the 153 patients without evidence of tuberculosis there was pulmonary tumor in 4, certain bronchiectasis in 40 and probable bronchiectasis in 27, bronchitis circumscripta nonspecifica (Leegaard) in 9, pulmonary infarct in 12 and bleeding from the throat in 12. In 22 no certain cause of the hemoptysis could be found.

Eczema in Infants from Pediatric and Dermatologic Points of View.—Wallgren states that eczema in infants is an expression of a constitutional anomaly on a hereditary basis. The eczema usually appears at about 3 months and disappears before the age of 2 or 3. The cause of the manifestation as well as exacerbation is often acute infection or mechanical, thermal or chemical irritation of the skin. Hypersensitivity to certain foods does not as a rule seem to be significant, and diet plays a subordinate role in treatment; only in exceptional cases does elimination of certain aliments lead to definite improvement. Of greater value are partly the elimination of acute infections and cutaneous irritations of various kinds and partly local dermatologic treatment.

34:1015-1080 (May 2) 1947. **Partial Index**

*Significance of "Histamine Antagonists" in Treatment of Allergic Diseases. P. Kallós.—p. 1015.

Hospitalstidende

*Effect of 2-Phenyl-Benzyl-Aminomethyl-Imidazolin in Allergic Diseases. A. P. Skouby.—p. 1022.
Twelve Cases of Grave Barbituric Acid Intoxication Treated with Picrotoxin. Ingrid Gilg.—p. 1025.
Pancreatic Fistulas. O. Riisfeldt.—p. 1029.

Finska Läkaresällskapets Handlingar

Oculostatic Syndrome. O. Parland.—p. 1044.

Norsk Magasin for Lægevidenskapen

Necrobiosis Lipoidica. K. Rørvik.—p. 1051.
Aleukemic Paramyeloblast Leukemia: Case with Unusual Symptomatology. O. Selvaag.—p. 1054.
Gonorrheal Complications Originated During Treatment with Penicillin. O. Selvaag.—p. 1056.

Hygiea

*Clinical Picture of Retrobulbar Neuritis in Intracranial Tumors. S. Larssen and B. Nord.—p. 1059.

Significance of "Histamine Antagonists" in Treatment of Allergic Disease.—Kallós concludes that antasten (2-phenyl-benzyl-aminomethyl-imidazolin), a histamine antagonist not employed in the United States, is valuable in the symptomatic treatment of urticaria, angioneurotic edema, neurodermatitis, serum sickness or exanthem due to drugs, Ménière's disease and certain forms of headache, but without effect in the treatment of migraine or asthma. The general reactions which occasionally appear on specific desensitization can probably to some extent be influenced by antasten. Its toxicity is slight and it may be given orally, injected intramuscularly or intravenously and be applied directly to the mucous membrane (eyes, nose). There is no indication that histamine antagonists affect the antigen-antibody reaction and the cell injury it causes.

Effect of 2-Phenyl-Benzyl-Aminomethyl-Imidazolin in Allergic Disease.—Use of this preparation in the treatment of 43 outpatients with vasomotor rhinitis, angioneurotic edema, urticaria and asthma, Skouby says, gave good results in the first three groups and was without effect in the fourth group. By-effects, seen in 13 patients, persisted in only 7 on the necessary maintenance dose. In 2 instances treatment was discontinued because the discomforts from it were more annoying than the symptoms. The majority of patients with urticaria were women and in several cases the symptoms were aggravated in connection with the menses, which suggests that the disorder may have an endocrine basis.

Clinical Picture of Retrobulbar Neuritis in Intracranial Tumors.—Larssen and Nord warn that in cases of tumor in the anterior and middle fossa reduced vision and central scotoma with or without papilledema or atrophy of the optic nerve constitute an early symptom the diagnostic value of which is frequently not recognized. The symptom is often attributed to sclerosis disseminata, and surgical intervention is thus delayed. Especially in cases with a protracted course, encephalography is indicated. Eight personal cases, namely 2 of meningioma of the olfactory groove, 2 of suprasellar meningioma, 1 case of meningioma originating in the lesser wing of the sphenoid, 1 of adenoma of the hypophysis, 1 of hypophysial duct tumor and 1 of subfrontal meningioma, are described in detail. All presented diagnostic difficulties, and retrobulbar neuritis was prominent in all. Spontaneous improvement in vision suggested the erroneous diagnosis of sclerosis disseminata in the first 4 cases, 1 case was ascribed to anemia, 1 possibly to brain trauma, 1 to arteriosclerosis; in only 1 case was cerebral tumor diagnosed without preceding misconception.

Revue d'Hématologie, Paris

2:1-148 (No. 1) 1947. **Partial Index**

Hemolytic Intragroup Reaction to Transfusion Due to Not Yet Described Hemagglutinogen. A. S. Wiener and E. B. Sonn Gordon.—p. 3.
Letter to the Editor on Nomenclature Rh. A. S. Wiener.—p. 11.
*Experimental Research on Leukemias and on Tumors of Reticuloendothelial System. M. Guérin.—p. 13.
Hemopathy as Untoward Reaction. A. Tzanck and B. Dreyfus.—p. 37.

Leukemias and Tumors of Reticuloendothelial System.—Guérin's experiments on chickens, rats and mice at the Cancer Institute of the University of Paris revealed an intimate relationship between leukemia and tumor growth. This was demonstrated by the production of sarcoma in chickens by inoculation with various leukemic strains. A myeloma was produced in rats at the point of entrance of an injection of crushed liver and spleen from a rat with chloroleukemia. The cycle was completed by the appearance of a myeloid leukemia in the advanced stage of the tumor. The only difference between the leukemias or the tumors of the birds and of the mammals consists in the fact that in the first the determining agent may be isolated from the cell in virus form, while in the second it is intimately connected with the leukemic or neoplasmic cell and cannot be separated from it by filtration. Immune phenomena were demonstrated concerning the leukemia in chickens which suggest the use of serum therapy or vaccination as effective means of combating the disease. Definite recovery resulted in 7 of 10 chickens with virulent leukemia from intravenous injections of massive doses of 6 methoxy-8 diethylamino-n-propylamino-quinoline (rhodoquine). Crushed liver injections from mice with spontaneous reticuloendotheliosis were given to mice; a diffuse reticuloendotheliosis was produced in some of the animals, a pseudoleukemic granulomatosis in others and subcutaneous sarcomas in several other animals. Two of these sarcomas were successfully transplanted. Leukemias or tumors of the reticuloendothelial system were produced in chickens by painting benzopyrine on the skin.

Book Notices

Practical Anæsthetics for Students, Hospital Residents and Practitioners. By J. Ross Mackenzie, M.D., D.A., Senior Anæsthetist, Royal Infirmary, Aberdeen. With foreword by W. C. Wilson, M.B., Ch.B., F.R.C.S.E. Second edition. Fabrikoid. Price, $3. Pp. 172, with 71 illustrations. William Wood & Co., Mt. Royal & Guilford Aves., Baltimore 2, 1946.

The popularity of Mackenzie's book is indicated by the demand for a new edition less than two years after the printing of the first. The author has fulfilled a double object: to provide students, hospital residents and general practitioners with a guide to the administration of the most commonly used anesthetics, also to give a summary of the knowledge of anesthetics which every student should possess on graduation.

He describes the preparation and after-care of the patient and gives directions for administration of the commonly used anesthetics: ether, chloroform, ethyl chloride, intravenous pentothal and nitrous oxide with oxygen. He describes the necessary apparatus and the technic of administration of the gas anesthetic agents. He has chapters on endotracheal, on intravenous and on local and regional anesthesia, including the spinal and splanchnic technic, on anesthesia and analgesia in obstetrics, on the choice of the anesthetic agent, on complications and sequelae of anesthesia, and on anesthesia for some special operations.

Anesthetic practice in Scotland differs in some respects from ours. We find that susceptibility to anesthetic drugs varies with the metabolic rate rather than with the weight of the patient. We agree that the stomach should not contain solid food and that liquids may be taken up to a few hours before operation, but we find that a simple enema given on the evening before operation reduces the chance for postoperative nausea and vomiting. The author's list of thirty-three items of essential anesthetic equipment may be confusing to the beginner or the occasional anesthetist. We do not think that trichlorethylene has had sufficient trial to warrant its recommendation to the beginner.

The book has chapters on oxygen therapy, on medicolegal notes and on anesthetics today and tomorrow. It provides interesting reading, well illustrated.

Morell Mackenzie: The Story of a Victorian Tragedy. By R. Scott Stevenson. Cloth. Price, $5. Pp. 194, with illustrations. Henry Schuman, 20 E 70th St., New York 21, 1947.

This story of more than half a century ago has needed retelling. Beside the figure of Mackenzie, a leading otolaryngologist of his day, pass those of Germany's last kaiser, Emperor William II and his ill fated father; of Virchow, von Bergmann, Queen Victoria and her household, Bismarck and others.

The author is a laryngologist of standing in London. His former chief, Mr. Irwin Moore, had known Mackenzie and felt that he had been misunderstood and poorly treated. The author takes us to a remotely familiar time of leisurely and spacious living in an England proudly confirmed in her world leadership.

Morell Mackenzie's polished and cultured father was a general practitioner in a village 6 miles from London. The son was ambitious and his medical education was excellent. He attended the magnificent clinics on the continent and met Charcot, Nélaton, Trousseau, Bretanneau, Rokitansky, Skoda and Czermak, who had popularized the laryngeal mirror and so helped to establish modern laryngology. Mackenzie had great ability. In 1887 he was called in consultation to see Crown Prince Frederick of Germany. The prince had been seen only by German physicians; they had diagnosed carcinoma of the larynx and advised operation.

Mackenzie examined the crown prince and opposed operation until a biopsy could be made. The first and subsequent ones were pronounced negative for cancer by Virchow. Operation was postponed but later it became necessary to do a tracheotomy. The patient's father, the emperor, died in a few weeks. The crown prince ascended the throne to rule for about three months and then passed away, to be succeeded by his son, Kaiser William II, the last emperor of Germany.

There have been few medical cases about which there has been more debate, mystery, recrimination and hidden politics. Some said that Mackenzie was influenced by British statesmen not to pronounce the crown prince a victim of incurable disease. It was in British interests that the prince succeed his father and make his wife, who was a British princess and the daughter of Queen Victoria, an empress. It is hard to believe that Mackenzie would lend himself to this sort of thing. Mackenzie, by present day standards, was correct in insisting on a biopsy. Virchow's negative report led to the delay which later made laryngectomy the only possible treatment. This operation in those days had a high mortality, and the patient refused to consider it. As for Mackenzie, possibly the best explanation of circumstances which led to his unhappiness was that the prince had a carcinoma low in the larynx, the so-called subglottic type, from which it was not possible to obtain a proper specimen. This was before the anesthetic properties of cocaine had been discovered and before laryngologists had our modern electrically lighted instruments.

This biography can be read with profit by any one interested in the politics and intrigues of a day not so long past.

Le problème biologique du cancer. Par Jacques Delarue, professeur agrégé à la Faculté de médecine de Paris, Paris. Préface de M. le recteur G. Roussy. Paper. Price, 300 francs. Pp. 200, with 31 illustrations. Masson & Cie, 120 Boulevard Saint-Germain, Paris 6e, 1947.

The first 140 pages of this monograph contain a summary of present knowledge of cancer from the clinical, experimental and public health points of view. This section mentions and discusses most of the important facts concerning cancer that have come out in the last few years, such as the work with carcinogens, hormones, heredity, the milk factor and transplantation into the eye. The author does not fully realize the advances in surgical technic that have been particularly striking in the United States in the last few years and his judgment as to the treatment is hampered by such ideas as "pneumonectomy and lobectomy are very dangerous operations."

The last 60 pages consist of a discussion of the causes of cancer, the causes of recurrence and the causes of metastases. This discussion starts with the theory that cancer arises as a result of chemical changes in the body as a whole and in the local area in particular. He believes strongly that when cancer arises at one point in a tissue it is also likely to arise at other points in the same tissue. This agrees fully with the studies of Shields Warren in this country, but the author apparently does not know of his work. He is on a sound basis in discussing recurrences in the local operative area. These, he believes, are due either to gross tissue left behind at an incomplete operation or to the development of a new cancer which we in the United States have been distinguished for some years as re-occurrence. His discussion of metastasis, however, is not so sound. He believes that metastases are not due to the transplantation of cancer cells to other parts of the body but to an influence either chemical, viral or neurogenic which causes a metaplasia of the cells in the neighborhood in which this influence works, the result of which is a local area of cancer identical or nearly identical in structure with the primary focus of cancer. Such theoretical material will undoubtedly leave many serious students of cancer cold.

The value of the book to students of cancer is reduced by its complete absence of a bibliography. The author quotes many authors by name in the text but does not mention the date of the particular work that he is quoting.

The Acute Infectious Fevers: An Introduction for Students and Practitioners. By Alexander Joe, D.S.C., M.D., F.R.C.P., Medical Superintendent, City Hospital, Edinburgh. Fabrikoid. Price, $4.50. Pp. 276, with 64 illustrations. Blakiston Co., 1012 Walnut St., Philadelphia 5. [n. d.]

In the preface it is stated that, "whilst it would be too much to expect that those with great experience of the subject would agree with all the views expressed, the latter at least ought to form a reasonable guide for the beginner until adequate observation has enabled him to form his own opinions." It seems strikingly apparent throughout the fifteen chapters comprising this volume that the foundations for beliefs are built of personal experience. Yet one cannot help but feel that the superb teachings of Ker have exerted a profound influence on the concepts in the text.

There is little discussion regarding individual patients or series of cases which are likely to be recorded in a contagious disease hospital and with which the medical superintendent would be familiar. Statistics are surprisingly few. For the most part the opinions expressed are sound and practically identical with those adhered to in fever hospitals elsewhere. In America, however, there are some who will not agree that a lumbar puncture "is necessary in cerebrospinal fever . . . for the relief of pressure." And for other conditions the use of poultices and mustard baths would be frowned on in most contagious disease hospitals of this country.

The best chapters are those which concern scarlet fever, diphtheria and smallpox. There is no bibliography, but the works of many authors are quoted, with the years in brackets. Though the great majority of these references extend back ten years or more, there is little to criticize on the ground of incompleteness. There is a chapter on puerperal sepsis and one on enteric fever, but no reference is made to poliomyelitis. Practically all of the other common contagious diseases are described.

The book is convenient in size. The various topics are set forth in a concise manner and follow closely opinions held by many who have made an extensive study of the acute infectious diseases. The volume should be helpful to the medical student but valued more highly by the resident and appreciated most by the experienced medical officer. There are a number of excellent photographs illustrative of such diseases as smallpox, scarlet fever and measles, also tables and numerous fever charts.

Chirurgie der Infektionen mit weitgehender Berücksichtigung der Behandlung. Von Prof. Dr. Rudolf Demel, Vorstand der II. Chirurgischen Abteilung der Krankenanstalt "Rudolfsstiftung" in Wien. Cloth. Price, $18. Pp. 659, with 494 illustrations. Grune & Stratton, Inc., 443 Fourth Ave., New York 16; Wilhelm Maudrich, Spitalgasse 1B, Wien IX/2, 1947.

The author points out in the preface that the surgeon must rely on his experience more when treating infectious processes than other conditions because the correct appraisal of the virulence of bacteria and the resistance of the invaded organism can be learned only from numerous observations. It is this experience that he tries to share with his readers.

The first part of the book deals with classification of infections, choice of anesthesia, preoperative treatment and postoperative care, while the second part is formed by description of surgical procedures in topographical order.

Perusal of the book detects numerous deviations from popular concepts and from the use of therapeutic measures in vogue in the United States. Regional ileitis is not mentioned. Newer sulfonamide compounds such as sulfathalidine and sulfasuxidine, also amino acids, dicumarol, heparin, menadione and absorbable sponges apparently are not being used by the author. Some methods are at distinct variance with those commonly used in the United States. One mg. (1/60 grain) of atropine preoperatively seems to be a rather large dose. In acute pancreatic necrosis the author recommends the drainage of the hepatic duct in preference to that of the gallbladder. To avoid tears during the removal of the drain, with the resulting fistula formation or cicatrical stenosis, the author uses a Nelaton catheter instead of a T tube for the drainage of the common duct. No distinction is made between thrombophlebitis and phlebothrombosis. For some obscure reason gastric resection and gastroenterostomy have been included in the text, although it is difficult to conceive what infections can necessitate such operations.

The book contains much practical material, offers sound advice and points out common errors. The illustrations, some in color, are numerous and instructive. The book should be of great interest to a seasoned, critical reader, if for no other reason than out of curiosity to see what is doing in medicine in a country ravaged by war.

Gynecology with a Section on Female Urology. By Lawrence R. Wharton, Ph.B., M.D., Assistant Professor of Gynecology, The Johns Hopkins Medical School, Baltimore, Maryland. Second edition. Cloth. Price, $10. Pp. 1,027, with 480 illustrations. W. B. Saunders Co., West Washington Square, Philadelphia 5, 1947.

The second edition of Wharton's book contains only a few changes in the text and a number of new illustrations. However, there is nothing wrong with this fact because the first edition was an excellent book and there have been no changes in the field of gynecology during the last four years which would demand radical changes in the book. The progress which has been made is indicated by the author because all the subjects including chemotherapy are brought down to date. In the large and excellent section on female urology, a chapter has been added on water cystoscopy, and the subject of the female urethra has been given a separate chapter. The present edition, like the first one, contains a large number of borrowed illustrations, but all of them are beautiful and instructive. The book is well written, the material embraces all the important phases of gynecology and female urology and the text and illustrations are clearly printed on good paper.

Diagnóstico y terapéutica quirúrgicos de urgencia. Por el Dr. F. Doménech-Alsina. Fabrikold. Pp. 912, with 330 illustrations. Salvat Editores, S. A., 371 Lavalle, Buenos Aires, 1947.

This will be an excellent textbook for medical students who are desirous of getting acquainted with the European concept of modern emergency surgery. The treatment for burns and gas gangrene is excellently outlined and very logical. The chapter on brain and cranial injury is weak compared with the works of Cushing, Naffziger, Glasser and others. However, the book covers well the particular types of injuries it discusses. It gives some original approach to the problems of thoracic surgery which reflects the fruition of the Spanish civil war experience. Our own textbooks on thoracic surgery, as a whole, are better. The author draws extensively from his vast experience obviously gained during the two wars—especially during the Spanish civil war of some ten years ago. Concise and explicit directions are given for tendon and nerve surgery. Although the chapter on acute conditions of the abdomen falls short on diagnosis, it more than compensates in its therapeutic and surgical approach. The treatment of acute peritonitis is rather drastic and unlike ours. Sulfonamide drugs and penicillin are sparsely used, although these drugs are recommended in other septic cases taken up in the text. Streptomycin is not mentioned. Some rare abdominal lesions with acute syndromes are skilfully treated in the text, with excellent analytic and diagnostic approach. The various lesions incident to hand injury, including nerve and tendon sutures, are well covered. The chapter on urologic lesions is not sufficiently inclusive to be further informative to seasoned American urologists. It is, however, very pertinent for general surgeons. Although the index is poorly done, this is a good book for general surgeons and a quick reference work for surgical emergencies.

Handbook of Medical Emergencies. Thomas B. Fitzpatrick, M.D., Chairman, Contributors. Cloth. Price, $2.50. Pp. 106. Harvard University Press, Cambridge 38; Oxford University Press, Amen House, Warwick Sq., London, E. C. 4, 1947.

Although the methods, drugs and dosages used in hospitals for each of the various kinds of medical emergencies vary, the intern and the resident often find need for a compendium which provides a sound pattern. This handbook, prepared with consultative help from faculty members, presents procedures for each emergency, step by step in outline form—drugs to be used and their dosages, supportive therapy and other indicated measures. Diagnostic criteria for some of the emergencies and suggested procedures to establish the diagnosis are presented. Opposing pages throughout the book are left blank, so that treatment changes or other notes can be recorded readily. There are sections dealing with penicillin and sulfonamide therapy, intoxications, infectious diseases, diseases due to allergy and to physical agents, and diseases of the various body systems. The longest sections are, appropriately, on intoxications, cardiovascular emergencies and neuropsychiatric diseases. Examples of specific topics discussed are laryngeal infection, meningitis, Jarisch-Herxheimer reaction, serum accidents, acute agranulocytosis, barbiturate poisoning, botulism, acute hepatic insufficiency, peripheral arterial embolism, addisonian crisis, congestive heart failure and transfusion reactions. Tables of equivalents and of normal blood, urine and spinal fluid values are provided. This excellent handbook fits snugly into the intern's coat pocket. It should be helpful to the young practitioner as well as to the hospital physician, for it contains a wealth of immediately useful information. The Harvard University Press and the faculty deserve congratulation for encouraging the authors to embark on medical writing projects early in their careers.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

PREGNANCY AND HODGKIN'S DISEASE

To the Editor:—A young married woman has definitely diagnosed Hodgkin's disease. She is two and one-half months pregnant. With this disease, which so far responds well to radiation, should interruption of pregnancy be considered?

M.D., Pennsylvania.

ANSWER.—Little is known about the association of Hodgkin's disease and pregnancy. According to Adair (Obstetrics and Gynecology, Philadelphia, Lea & Febiger, **2**:610, 1940) up to 1940 a search of the medical indexes revealed only 1 case of Hodgkin's disease and pregnancy. This patient delivered a full term child and died a month later. The infant succumbed three and one half months afterward to Hodgkin's disease. There have been 2 cases of this disease associated with pregnancy at one hospital. The first patient had had four previous pregnancies. The fifth pregnancy was terminated at the twenty-sixth week by hysterotomy; tubal ligation was performed at the same time. The patient was alive at least five years later. The second patient delivered a healthy full term baby. She also was alive five years later, and ten years from the time the original diagnosis of Hodgkin's disease was made. Both women received immense amounts of roentgen therapy and both became pregnant during the course of irradiation. Since 2 of these 3 patients did not seem to be adversely affected by their pregnancies and since the young woman has so far responded well to irradiation, the pregnancy might be permitted to continue. However, a factor which must be considered in the decision is that even though pregnancy and labor may be well tolerated the outlook for the patient is poor and it is uncertain how long she will live to take care of her child.

BENZIDINE REACTION FOR BLOOD

To the Editor:—What factor in hemoglobin produces a positive benzidine reaction in testing for occult blood in the stool? What is the influence of iron salts, if any, in producing a positive benzidine reaction, having in mind the article by Schwartz and Vil in the February 1947 issue of the *Journal of Laboratory and Clinical Medicine*?

Thomas Geleff, M.D., Mount Vernon, N. Y.

ANSWER.—It is the heme portion of the hemoglobin molecule which catalyzes the benzidene or guaiac reactions to produce the blue of a positive test. The test itself is not specific. Oxidases present in feces or contained in pus cells can also catalyze the reaction. In order to avoid false positive reactions produced by these enzymes, some workers have advised that aqueous suspensions of feces be heated to boiling to inactivate oxidases before the test is done (Burger, G. N.: *Guy's Hosp. Rep.* **84**:112, 1934).

The second part of this question is more difficult to answer. Several studies have been made to determine how frequently false positive reactions for occult blood are obtained on the stools of patients taking iron in therapeutic doses. Technics differed and the percentage of false positive tests varied widely. There is no doubt, however, that when the tests are applied to fecal specimens directly, or to aqueous suspensions, the presence of a large amount of iron may cause a false positive reaction. It has been pointed out that much larger concentrations of iron than of hemoglobin are required to produce a blue with either the benzidine or guaiac reagents, and that the blue caused by iron fades more quickly and is not of the same shade; these differences are not distinctive enough to prevent confusion. By ether extraction, however, one can with certainty differentiate a positive test caused by hemoglobin from one due to iron. Hemoglobin is extracted by ether from a weakly acidified aqueous solution while iron is not; a solution must be made strongly acid (6 × normal hydrochloride acid) before iron will go into the ether layer. Therefore if 5 cc. of an aqueous suspension of feces is acidified with 1 cc. of glacial acetic acid and extracted with an equal volume of ether, the hemoglobin will go into the ether while iron will remain in the aqueous layer. The guaiac reaction may then be applied to the ether layer; a positive test indicates the presence of hemoglobin. Benzidine is less satisfactory because peroxides present in ether may cause the benzidine reagent to turn a light blue even in the absence of hemoglobin.

STERILITY DUE TO CLOSURE OF OVIDUCT

To the Editor:—A woman aged 26, married for three years, has been trying to become pregnant for the past year and a half. She had a right salpingo-oophorectomy for a dermoid cyst seven years ago. The husband's sperm test was normal. A sperm penetration test and endometrial biopsy were normal. A histosalpingogram revealed a blockage of the oviducts at the corner of the uterus. The patient menstruates regularly and ovulates on the seventeenth and eighteenth days. A Rubin test is to be done in a month after a course of diathermy and foreign protein injections. The patient has asked: 1. In the event of failure of the Rubin test to blow the remaining tube open, is it advisable to do more than one Rubin test? 2. If the Rubin test fails is there any plastic operation to open the left tube? What are the chances of its staying open? 3. Can the Rubin test open the left tube if the closure is due to postoperative adhesions?

M.D., Brooklyn.

ANSWER.—1. Usually when gas fails to pass through the tubes on the first Rubin test a second one is done, preferably after the use of atropine sulfate or other antispasmodic to relieve any possible spasm at the uterotubal junction. In the case in question the hysterogram revealed closure of both tubal insertions into the uterus, so there is little likelihood that a second Rubin test will force gas through the remaining tube. There is, however, no harm in repeating the Rubin test once more; but since there is only one tube present and it is most likely closed, the pressure should not exceed 180. If excessive pressure is used there is a slight possibility of rupturing the tube or adhesions. In answer to the third question there is nothing to be gained by trying to open the left tube if it is closed by adhesions, because, even if an opening can be forced through the adhesions, pregnancy will be unlikely because the tube is almost certainly abnormal. Secondly there is a strong likelihood that the tube will be sealed over again.

2. A plastic operation can be performed in an effort to overcome the sterility. If the tubal closure is limited to the uterotubal junction this area may be resected and the new proximal end of the tube implanted in the uterine corner. If in addition to the uterotubal closure there is closure of the tube at the fimbriated end, a salpingostomy can be done to make an opening in the outer end of the tube. Unfortunately, plastic operations on the oviducts do not yield satisfactory results as yet.

J. P. Greenhill's review of the literature (*Am. J. Obst. & Gynec.* **33**:39 [Jan.] 1937) concerning salpingostomy and tubal implantation for the purpose of overcoming sterility does not present a favorable picture for these operations. "The chief reasons for this are the relatively few live babies secured by these measures, the disproportionately high number of ectopic pregnancies which have resulted, and other complications which may follow such operations.

"The following conditions should be present before a plastic operation on the tubes is performed: The patient must be in the childbearing period, preferably under 35 years of age; she must have at least one functioning ovary; both tubes or the only tube present must have been proved closed; there must be no other cause for sterility than tubal closure; there must be no gonorrheal, postabortal, puerperal or tuberculous infection in the genital tract, and the patient must be a good surgical risk. Of course, the husband must be fertile and healthy."

OLEOTHORAX TREATMENT

To the Editor:—Please advise me as to the use of peanut oil or gomenol used in tuberculous empyema following pneumothorax. If frequent aspirations do not clear up the empyema and oil is used, how long should the oil remain in the pleural cavity? It is assumed that the sputum has been converted, and the x-rays show a stationary lesion.

Edward K. Disney, M.D., Outwood, Ky.

ANSWER.—Oleothorax is a form of collapse therapy which has many limitations and dangers. It is indicated only in pneumothorax which is complicated by an obdurate tuberculous empyema or in pneumothorax which is threatened by an obliterative pleuritis. It should never be employed when there is active, progressive disease in the lung, when there are subpleural caseous or ulcerative lesions, when a large open bronchopleural fistula is present or when adhesions are attached to the pleura near the active tuberculous process. The complications of bronchopleural fistula, increased pleural exudate, oil embolism, tuberculous sinuses and paraffinoma of the chest wall are not inconsiderable. Despite these serious complications and the many limitations, oleothorax is of definite value in rigidly selected cases.

In the induction of oleothorax, pleural reactions occur in 64 per cent of cases. Consisting of fever, aching, chest pain and pleural exudate, the reaction may be obviated by placing 2 cc. of oil in the pleural space after the end of a regular pneumothorax refill. A reaction may occur at any time and must be allowed to subside before the next injection. The

amount of oil is gradually increased. In tuberculous empyema a partial oleothorax is sufficient to control the pleural exudate and symptoms; the air space above the oil is a factor of safety. A complete blockade should never be permitted if the symptoms persist or if the exudate continues. The patient must be carefully watched for the presence of pleural exudate; this is aspirated from the bottom of the pleural space.

If the oleothorax does not attain the purpose for which it was instituted, it should be abandoned after a fair trial and other measures substituted. If successful the oil should be withdrawn within six to twenty-four months and replaced by air. Expansion of the lung is more easily controlled under pneumothorax from the standpoint of x-ray and technic. Successful reexpansion after oleothorax is not common.

AMYOTONIA CONGENITA

To the Editor:—**I have under my care a child whom I delivered. The mother had a normal pregnancy and was in labor only ten hours; the baby was delivered with low forceps and episiotomy. The infant did not show evidence of any cerebral trauma and appeared normal in every respect. The child developed normally, ate well, gained weight and showed no evidence of any abnormalities until it was noticed, at the age of six months, that she could not sit up and there was no progress in the ensuing three months. On any attempt to have the baby sit up she would fall either on her face or on her back. There was no associated paralysis of the extremities, and sphincter control was normal, with normal movements of arms and legs and reflexes. The entire weakness seemed to be localized in the sacral region of the spine. A tentative diagnosis of amyotonia congenita was made. The child was placed on large doses of glutamic acid, vitamin E and a course of neostigmine to rule out myasthenia gravis. At the age of 16 months she is able to sit for an hour at a time and can raise herself if she falls forward and, though she can rise up if given slight support, if she falls backward she cannot rise from the supine position. The child appears to have an associated mental retardation of at least six months. Please discuss whether there is a mental retardation with amyotonia, and what is the prognosis in a case like this and any new therapy.**

M.D., New Jersey.

ANSWER.—The symptoms are characteristic of the infantile type of muscular atrophy known as amyotonia congenita (Oppenheim's disease). Although present from birth, the first symptoms are often not observed until the child attempts to raise its head or to sit up. Improvement as the child grows older is not uncommon. Most patients show hypotonicity of leg muscles when these are brought into use, as in standing and walking. Reflexes are usually absent, no electrical reactions are obtained and the blood creatinine value is below normal. The most impressive feature is the profound atonia, often combined with laxness of tissues around the joints. Fantastic postures can be assumed with ease. Mental retardation is not found as part of amyotonia congenita, but the child may be somewhat "backward."

Few patients with amyotonia congenita live beyond the age of 12. Respiratory infection causes about 90 per cent of the deaths. Complete recovery is unknown. Treatment of value has yet to be suggested.

POSSIBLE SYSTEMIC MELANOSIS

To the Editor:—**A woman aged 46, who is a Negro approximately one-fourth white, has become noticeably darker in the last two years. Her skin has changed from a questionable negroid to a definitely dark color. I should like to know if there are any articles or knowledge concerning this phenomenon.** **J. Benton Egee, M.D., Newtown, Conn.**

ANSWER.—The usual course of pigmentary change in the Negro, according to Dr. Julian H. Lewis (Biology of the Negro, Chicago, University of Chicago Press, 1942) is a darkening of the skin a few hours after birth, which process continues and reaches its maximum at about puberty. After puberty, the pigment diminishes in intensity. Accordingly, it would seem that significant darkening between the ages of 44 and 46 suggests systemic melanosis. If there has not been a generalized exposure to ultraviolet light, either natural or artificial, search should be made for systemic disorders which might produce such darkening. Most prominent among such conditions is Addison's disease, which could be caused by tuberculosis or other involvement of the adrenal glands. Hodgkin's disease has also resulted in systemic melanosis. Hyperthyroidism has produced such a change in some instances. Other causes of darkening, such as argyria, can usually be identified by the history of ingestion of silver salts and/or identification of silver-containing granules in microscopic sections of the skin.

HYPERGLYCEMIA WITHOUT GLYCOSURIA

To the Editor:—**For some time I have noticed that treated diabetic patients who have blood sugar 300 mg. per hundred cubic centimeters or more often have negative tests for sugar in the urine. Of course a high renal threshold might be responsible for this condition. What is the physiologic basis for this condition?** **M.D., Milwaukee.**

ANSWER.—Glucose diffuses freely out of the blood into the glomerular filtrate. Under normal conditions it does not appear in the urine in clinically significant quantities because it is almost completely reabsorbed and returned to the blood by the kidney tubules. The reabsorption process in the tubules is now known to occur by a phosphorylating mechanism.

The amounts of glucose which filter through the glomeruli depend on the concentration of sugar in the blood, the renal blood flow and other factors. When the blood sugar level rises to approximately 180 mg. per hundred cubic centimeters or above, the amounts of sugar which pass into the glomerular filtrate are such as to exceed the phosphorylating capacity of the kidney tubules. Hence clinically significant glycosuria begins, and the concentration of sugar in the blood at which this occurs is spoken of as the "kidney threshold."

Accordingly, the "kidney threshold" may be raised by any circumstances which alter the ratio of the respective capacities for filtration and reabsorption in favor of the latter. This occurs to a minor degree with advancing age and sometimes in kidney disease. The basis for these changes is probably a restriction of renal blood flow, which is great enough to diminish glomerular filtration but not great enough to impair the phosphorylating capacity of the kidney tubules.

However, major increases in "kidney threshold" are not common. The inquirer should therefore make certain that the observations which prompted his question are valid ones. When the blood sugar level fluctuates widely, as it is apt to do in diabetic patients, one may happen to determine the blood sugar level while it is at a peak value above the "kidney threshold" and yet have little or no glycosuria. For, even if the threshold is perfectly normal, the sugar excreted into the urine during the height of the hyperglycemia may be diluted by the sugar free urine excreted while the blood sugar level is below the "kidney threshold," so that the average sugar concentration in the urine collected over the whole period may not be clinically significant.

FLUORIDE MEDICATION AND DENTAL CARIES

To the Editor:—**I should like to know the current opinion on the use of fluorides in the prevention of dental caries in adults, particularly with reference to "Enziflur" (Ayerst, McKenna and Harrison, 22 East Fortieth Street, New York). The manufacturer does not quote direct evidence and only implies that it is useful, based on studies with children. Also do you believe this preparation is contraindicated in pregnancy?**

Benjamin E. Lyons, M.D., Greenwich, Conn.

ANSWER.—The fluorine-dental caries hypothesis rests on the evidence observed in extensive epidemiologic studies which show that children calcifying their permanent teeth while using a domestic water containing about one part per million of fluoride (F) show only about one third as much dental caries as comparable groups of children using a fluoride-free water. These epidemiologic observations are fully supported by biochemical and animal experimental studies.

The Council on Dental Therapeutics of the American Dental Association in a recent report (*J. Am. Dent. A.* **34**:213 [Feb. 1] 1947) states, with respect to this matter, "Though probably not dangerous in amounts recommended for daily consumption, fluoride added to diets already high in fluorine content or consumed in areas where water supplies contain significant concentrations of fluorine may constitute a health hazard. This possibility and the inconclusive nature of experimental evidence concerning their effectiveness render synthetic fluoride and fluoride-vitamin preparations for use in the treatment of dental caries not acceptable for inclusion in Accepted Dental Remedies at this time. The Council recognizes that the potential value of scientifically formulated oral fluoride preparations may be established at some future time and will give consideration to further data as they appear."

An editorial in the *Journal of the American Dental Association* (**34**:345 [March 1] 1947) states, in part, "Stream and Beaudet (Inhibition of Dental Caries by Ingestion of Fluoride-Vitamin Tablets, *New York State J. Med.* **45**:2183 [Oct. 15] 1945) have reported some lessening of caries activity in children receiving daily supplements of 3 mg. of calcium fluoride for

periods of six to eight months. This study is not conclusive because it is based on totally inadequate data to support the claims made. Until more convincing data are presented, therefore, the use of fluorides in dentifrices, mouthwashes, tablets and lozenges cannot be recommended."

It would appear, therefore, that at the present time there is no acceptable scientific evidence adequately controlled which would indicate that fluoride tablets taken by adults will or will not reduce the incidence of dental caries.

TESTOSTERONE AND ARTERIOSCLEROSIS

To the Editor:—Of what benefit is testosterone in the treatment of arteriosclerosis? Is there not an element of danger? My patient cited the advice of a physician who also felt the androgenic hormone would help his anginal attacks. This patient insisted his nocturnal micturition was abolished by the use of this agent.

Paul W. Van Metre, M.D., Rockwell City, Iowa.

ANSWER.—Thus far convincing evidence has not been elicited that testosterone affects arteriosclerosis either beneficially or adversely. Arteriosclerotic changes start many years before they become clinically manifest, and it is highly unlikely that the processes are appreciably reversible. Arteriosclerosis in women is not affected by estrogenic therapy; there is little likelihood that the same disorder in men will be significantly benefited by androgen administration. The symptoms of the male climacteric, which usually occur somewhere between 55 and 65 years, are vague and indefinite: anxiety, indecisiveness, apokamnosis, hyperhidrosis, insomnia and the like. These may or may not be as much of psychogenic origin as due to hormonal depreciation, for at these years profound changes in social status and social security are apt to occur. Retirement, the dissolution of the family by marriage of children, loss of potency and diminution of the signs of respect from younger competitors in vocational fields all contribute to the emotional instability which is the predominant sign of the male climacteric. It is claimed that testosterone is of great value for these patients, but one must be skeptical and consider also the element of psychologic effect.

The dangers of testosterone are insidious and therefore all the more significant. Prostatic hypertrophy is accelerated and there is some evidence (not absolutely convincing as yet) that androgens may accelerate conversion of prostatic hyperplasia into cancer. Certainly the growth of prostatic carcinoma is accelerated. In the light of present knowledge, testosterone is probably not indicated in the management of arteriosclerotic disease.

PROLONGED PNEUMONIC CONSOLIDATION

To the Editor:—A patient has delayed resolution from lobar pneumonia. This is the second case of this kind I have had in the last twenty years. My treatment of the first case was unsatisfactory. The second case seems to be following the same course. Is there any treatment or way of handling this type of case that promises a cure?

H. I. Blood, M.D., Hazel Green, Ky.

ANSWER.—The question cannot be answered satisfactorily without information about the clinical course. Delayed resolution may imply simply a delay in the absorption of the infiltrate or exudate in the lung without subjective symptoms, which needs no treatment and usually clears up in time. If the term delayed resolution is used synonymously with unresolved pneumonia, a common error, it implies a continuation of the disease. In the case of pneumococcic lobar pneumonia, this occurs without explainable reason in rare instances even after proper treatment. Often, however, some other process is present such as bronchiectasis, abscess, foreign body or neoplasm. In viral pneumonia the course may last three or more weeks before resolving. Effort should be made to determine the type of pneumococcus involved in the first place and if any of the complications mentioned are present before proper therapy can be given.

HEMATOCRIT VALUES IN CHILDREN

To the Editor:—Would you give me the hematocrit values of normal children according to the age, ranging from birth to six years?

M.D., Buffalo.

ANSWER.—The hematocrit values for children vary greatly and do not have significance except in relation to the red cell count. At birth and during the first few days of life the hematocrit values are higher than the red cell count because of the fact that the mean volume of the red cell is larger than normal. The cell soon returns to normal, however.

COSMETIC EFFECT AFTER REMOVAL OF FACIAL CYST

To the Editor:—The answer to the query in The Journal July 19, 1947, page 1056, concerning the removal of a sebaceous cyst from the face with minimum postoperative scarring can be improved on. For years, in all wounds of the face, as well as in the incision for the removal of goiter, I have used a subcuticular suture of 000 iodine catgut. No stitch holes are made in the skin, the suture is absorbed, no dressing is used, and the resulting scar is less than by any other method.

John D. Singley, M.D., Pittsburgh.

To the Editor:—A simple, successful and nonscarring procedure to treat sebaceous cysts has been used in my practice for eighteen years and in dozens of cases. The advantage of the procedure is seen especially in sebaceous cysts which involve the entire ear lobe or which have been repeatedly infected and are thereby rendered more recalcitrant to surgery. Anesthesia consists of an intradermal wheal in the roof of the cyst with 1 per cent procaine, then forcible injection with considerable pressure of the anesthetic solution into the cyst sac. This anesthetizes the proposed point of incision and the wall of the cyst sac. The latter portion of the anesthetic maneuver is important. With the actual cautery, fulgurating point or a blunt or sharp instrument a small opening is made into the cyst and the retained sebum is then completely expressed. With a dry cotton applicator the interior of the cyst scar is dried, multilocular extensions explored and evacuated, and all sebaceous material removed. A cotton applicator soaked with liquefied phenol (95 per cent) is then inserted and all surfaces of the cyst sac are thoroughly cauterized. The skin about the incision is protected with frequent applications of 70 per cent alcohol on a cotton sponge. After five minutes the phenol within the sac is neutralized with alcohol. A drain is then inserted and changed each day for two or three days. The wound is then permitted to heal. Sometimes the cyst sac presents at the incision on the second day and may be extracted, but this is not important as it will be absorbed. If properly done this will eradicate 100 per cent of sebaceous cysts without unsightly scarring.

Hiram D. Newton, M.D., San Diego, Calif.

To the Editor:—In The Journal, July 19, the question is asked as to the best method of removing a sebaceous cyst from a girl's face without leaving a scar. The answer states "There is no way possible to remove a cyst of this type without an incision through the skin," apparently evidencing unfamiliarity with the method described by Joseph A. Danna (*New Orleans M. & S. J.* 98:5 [July] 1945). By this technic a needle is inserted into the cyst and the unipolar desiccating current applied. I have treated sebaceous cysts by this method with uniform, complete obliteration and no resultant scar.

Norman R. Goldsmith, M.D., Lancaster, Pa.

To the Editor:—In The Journal July 19 the answer to the query on "Cosmetic Effect After Removal of Facial Cyst" is incomplete. It is misleading also because an "incision" in the ordinary sense of the word is not necessary for the cure of this lesion. Formerly it was believed that sebaceous cysts were formed by the blocking of outlets of otherwise normal sebaceous glands. Whether or not this is true, they can be cured by making artificial outlets provided the new outlets are made in a manner to insure their remaining open for a month or longer. I use the high frequency cutting current from a vacuum tube type of machine and make a hole about 0.5 cm. in diameter (larger for large cysts) which penetrates the skin and the sac. It remains open for a sufficient length of time for the sac to atrophy or regress to about the size of a normal sebaceous gland. When this occurs, it usually appears about like the hole remaining after extraction of a blackhead. This method is especially applicable in a case such as the one described, because the preceding infection would make removal in toto by sharp dissection rather difficult and productive of further scarring. This method is not new and it has certain disadvantages. A somewhat longer time is required for cure and some surgical judgment is required, as too small a hole will close prematurely, while an unnecessarily large one makes a conspicuous scar; but in my opinion the advantages far outweigh the disadvantages.

Lyman C. Blair, M.D., Houston, Texas.

To the Editor:—In Queries and Minor Notes in The Journal of July 19 Willis P. Baker of Santa Ana, Calif., inquired how to remove a sebaceous cyst from the face with a satisfactory cosmetic result. I should like to call attention to a method advocated by Dr. Joseph A. Danna in the *New Orleans Medical and Surgical Journal* 98:5 (July) 1945 in an article entitled "A Simple Treatment for Sebaceous Cyst." While I have used it since 1939, Dr. Danna is entitled to full credit for publicizing this effective method which consists in anesthetizing the high point of the cyst with procaine or some other local anesthetic and then inserting a fine needle into the cavity at this thinnest point. The current is then applied until a whitish eschar forms at the needle. The contents are then forcibly expressed. The cyst grows smaller and smaller until it eventually levels off with the skin. One treatment is usually enough for cysts up to 3 cm. but several punctures may be used for larger cysts. The cosmetic result is excellent if properly done.

Edwin Matlin, M.D., Mount Holly Springs, Pa.

To the Editor:—The answer to the query on Cosmetic Effect After Removal of Facial Cyst fails to mention utilization of the monopolar high frequency current. A technic of long standing and certainly widely known is to place the needle of a high frequency machine Oudin current into the cyst. The current soon softens the sebaceous material content, which is released when the needle is withdrawn. Further current on reinsertion of the needle into the first aperture loosens the sac. Very little traction with a forceps permits the withdrawal of the sac through the same opening. No suture is required. The scar is small. Sebaceous cysts of the face and scalp have been removed by this method over the past twenty years. The results are excellent. Local anesthesia is not required. The high frequency apparatus must be of the type permitting current flow from its Oudin coil with the needle inserted into the cyst. Some apparatus fails in this important feature of the method.

Herman Goodman, M.D., New York.